AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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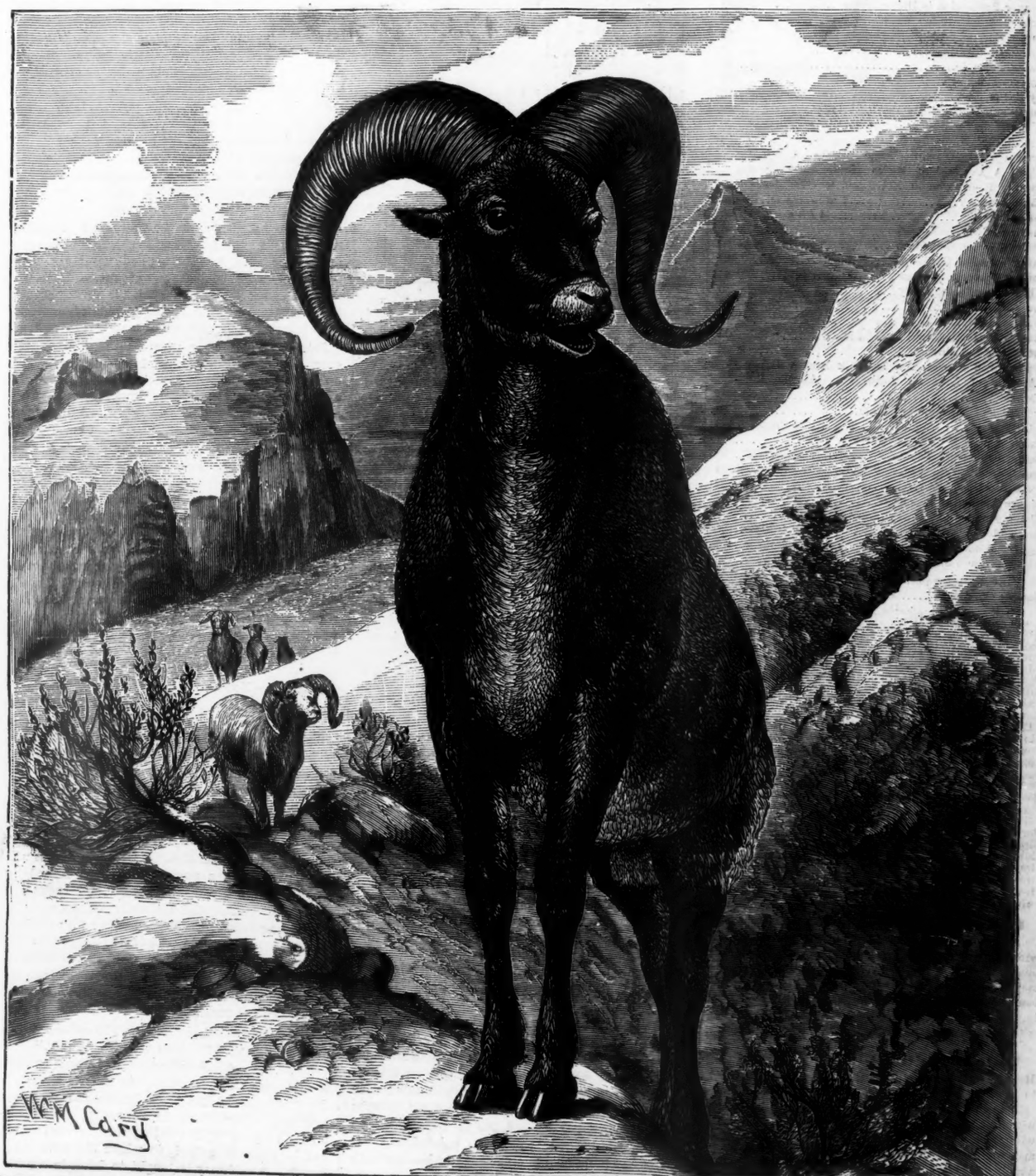

THE ROCKY MOUNTAIN SHEEP, OR BIG HORN.—*Drawn from Life, and Engraved for the American Agriculturist.*—(*See p. 90.*)

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Failure to Breed.—"M. A. F.," Greene Co., Mo. When a heifer has grown to be 6 years old without breeding, it may be concluded that there is some physical defect in her, which prevents it, and her case may be considered hopeless. There are no drugs that can avail in such a case; reducing the condition by bleeding, is sometimes practiced, but this is only effective with fat or plethoric animals.

Mule Breeding.—"J. W. M.," Isonti Co., Minn. The risk of injuring a small mare or other animal, in breeding her to a large-sized mule, is greatly overestimated. The risk lies more in choosing a large mule with a large head and coarse limbs, and a small female, with light, narrow hind-quarters; with well formed animals there is no extra risk. When a young mare produces a mule, very often, but not always, her future colts by a horse will have mulish ears, but they will not be mules.

Calendar for March.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets.	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets.	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets.
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	W	6 36	5 50	morn	6 34	5 52	morn	6 33	5 53	morn
2	T	6 34	5 51	0 19	6 32	5 53	0 14	6 31	5 54	0 8
3	F	6 33	5 52	1 36	6 31	5 54	1 29	6 30	5 55	1 22
4	S	6 31	5 54	2 48	6 29	5 55	2 40	6 28	5 56	2 32
5	S	6 29	5 55	3 48	6 28	5 56	3 41	6 27	5 57	3 33
6	M	6 28	5 56	4 37	6 27	5 57	4 30	6 26	5 58	4 24
7	T	6 26	5 58	5 16	6 25	5 59	5 11	6 24	5 59	5 6
8	W	6 25	5 59	5 47	6 24	6 0	5 44	6 23	6 0	5 40
9	T	6 23	6 0	6 14	6 22	6 1	6 11	6 21	6 1	6 9
10	F	6 21	6 1	rises	6 20	6 2	rises	6 19	6 2	rises
11	S	6 19	6 2	7 50	6 18	6 3	7 49	6 18	6 3	7 48
12	S	6 17	6 3	8 53	6 16	6 4	8 53	6 16	6 4	8 52
13	M	6 16	6 4	10 5	6 15	6 5	10 1	6 15	6 5	9 57
14	T	6 14	6 6	11 11	6 13	6 6	11 6	6 13	6 6	11 1
15	W	6 12	6 7	morn	6 12	6 7	morn	6 12	6 7	morn
16	T	6 10	6 8	0 18	6 10	6 8	0 14	6 10	6 8	0 5
17	F	6 9	6 9	1 21	6 9	6 9	1 14	6 9	6 9	1 7
18	S	6 7	6 10	2 17	6 7	6 10	2 9	6 7	6 10	2 2
19	S	6 5	6 11	3 4	6 5	6 11	2 57	6 5	6 11	2 50
20	M	6 3	6 12	3 42	6 3	6 12	3 35	6 3	6 12	3 29
21	T	6 2	6 14	4 13	6 2	6 13	4 8	6 2	6 13	4 3
22	W	6 0	6 15	4 41	6 1	6 14	4 37	6 1	6 14	4 33
23	T	5 59	6 16	5 3	6 0	6 15	5 1	6 0	6 15	4 53
24	F	5 57	6 17	5 24	5 58	6 16	5 22	5 58	6 16	5 21
25	S	5 55	6 19	sets	5 56	6 17	sets	5 56	6 17	sets.
26	S	5 53	6 20	7 37	5 54	6 18	7 35	5 55	6 18	7 32
27	M	5 52	6 21	8 51	5 53	6 19	8 47	5 54	6 19	8 43
28	T	5 50	6 22	9 57	5 52	6 20	9 51	5 53	6 20	9 47
29	W	5 48	6 23	11 24	5 50	6 21	11 17	5 51	6 20	11 11
30	T	5 46	6 24	morn	5 48	6 22	morn	5 49	6 21	morn
31	F	5 44	6 25	0 41	5 46	6 23	0 35	5 47	6 22	0 26

PHASES OF THE MOON.

MOON.	D.	BOSTON. H. M.	N. YORK. H. M.	WASH'N. H. M.	CHA'STON H. M.	CHICAGO. H. M.
1st Quart	3	5 4 mo.	4 52 mo.	4 40 mo	4 28 mo.	3 57 mo.
Full M'n	10	1 28 mo.	1 16 mo.	1 4 mo	0 52 mo.	0 22 mo.
3d Quart.	17	8 40 ev.	8 28 ev.	8 16 ev.	8 4 ev.	7 34 ev.
New M'n	25	3 28 ev.	3 16 ev.	3 4 ev.	2 52 ev.	2 22 ev.

AMERICAN AGRICULTURIST.

NEW YORK, MARCH, 1876.

What has been the effect of the mild winter upon the fall-sown crops, we cannot as yet say. The effect upon the live stock is the principal thing to be dreaded. A warm, damp winter, makes an unwholesome barn-yard, and trouble may be looked for so soon as the warm spring suns have their effect. The least sign of discomfort amongst the stock should receive immediate attention. A dose of simple medicine, a little sulphur, or even a little nursing, with some warm slops or extra food, will generally prevent a serious attack, or the loss of a valuable animal. No farmer can succeed at the present day unless he be a "*book farmer*," and the first book he will need at this time will be a memorandum book in which he may jot down whatever may occur to him as needing to be done. If he attends to this "book farming" properly, he will find that a good many entries will have to be made, and everything set down should be taken up in order. The secret of those who are known as great workers, is that they work methodically, and do everything at the proper time, and there is no business in which so much will fail, unless the work be done when it should be, as that of farming. One day's delay may not be recovered during the whole season.

Hints about Work.

The Workshop.—The increase in the machinery used upon farms make it desirable to have a properly furnished workshop. It will not pay to run to the carpenter or the blacksmith when a little repair is needed. The time lost is too valuable, and the yearly bill for repairs is a serious item. One of the useful results of machinery is to increase the value of a man's time, and this should be provided for.

Cleaning up.—This is an important job, and can be done during rainy days. Clean out the potato bins, select seed potatoes, thoroughly clean and whitewash the cellar, put the dairy into good condition, sweep the granary; every cobweb and hiding place for weevils and grain moths to deposit their eggs in should be explored and filled with whitewash; the feed rooms and mixing troughs should be swept or scraped, the yards scraped, and the rubbish burned; the plows painted, and the shares and mold-boards polished; the harrow teeth sharpened, and everything that can be done now, should be attended to. *A little forethought is worth a great deal of afterthought.*

Manure may be hauled on to fall plowed ground intended for spring crops, upon the late snows or on the frozen ground in the early part of the day. That intended for corn should be carefully turned, and well mixed, to equalize its value. Mix the droppings from the poultry roost evenly in the heap. A few bushels of wood ashes thrown in will not hurt the manure if the whole is well mixed together, and they will help to decompose it, but this should be cautiously done. Coarse, fresh manure for fall crops may be hauled out, and made into a compost near where it will be used.

Surface Water.—Turn the wash from the public roads into the fields where it can be made to spread over and fertilize as much surface as possible.

Fence posts may be made firm by tamping with a rammer, a flat stone rammed down against a loose post will be useful, and as many stones as possible should be thus driven around the posts. Stakes should be driven down firmly while the ground is soft, after the frost has disappeared.

Plowing.—No plow should be put into the ground until the soil is dry. When a spadeful of earth thrown down crumbles into a loose mellow heap, the plows may be started, but not while the spade comes out of the ground smeared and soiled. A few days delay is better than being a day too soon. The first in the field is often the last at harvest.

Artificial Fertilizers.—In the southern and middle states where grass or clover have started growth, guano or plaster may be applied now; the best time is when the fields have a green and fresh appearance, showing that vegetation is already active and ready to be assisted; 100 pounds of each, or both together, may be sown over an acre.

Potatoes.—Plant early potatoes as soon as the ground is dry and warm. A few early frosts will do no harm if the young shoots are kept covered by the hoe or the plow when a frost is feared. The earlier the crop, the higher the prices. A difference of a week may make a difference of $1 a bushel.

Spring Wheat.—The earlier this crop is in the ground the better. Now that the new process of grinding has been brought into use, the value of extra spring is equal to that of the best fall wheat. It is as easy to produce extra wheat as No. 3 or rejected. The whole difference is just that between careful and slovenly farming. Perfectly clean seed, of a pure variety, and well prepared ground, will produce first quality of wheat; but with foul seed, mixed with oats and rubbish, as we sow, so we reap. Minnesota farmers are making a world-wide reputation for their wheat, which is now sought in foreign markets, by producing a superior sample. This is worth making a note of.

Meadows.—No stock should be allowed to wander over the meadows. This is doubly injurious. It destroys the grass and spoils the appetite of the animals for dry feed. Nothing is gained, but much is lost by this practice. The ground is also "poached," and quagmires are formed in low springy spots where the first grass appears.

Mares in foal should not be tied up in their stalls; but kept in loose roomy stalls not less than 9x11 feet. It would be far better if no horse were kept in a stall of less size than this. Some horses will not lie down in a narrow stall until forced by fatigue, and many wounded hips and backs are caused by contact with the walls of narrow stalls. Brood mares may be worked lightly; they are better for the exercise. A feed of carrots, ruta-bagas, or sugar beets daily, will be useful, or instead of these a quart of linseed oil-meal, with their usual feed, may be given. Costiveness in any breeding animal is to be carefully guarded against.

Cows.—The safest place for an incoming cow is a roomy box stall. See lasts month's "Hints."

Calves.—A calf should never be allowed to suck if it is possible to avoid it. As soon as its coat is dry it should be taken from the cow and put into a stall next to her, where she can see it. This is better than separating them altogether, unless the calf can be removed entirely to where the cow cannot hear it. A calf may be taught to drink in one les-

son if patience is used, and it has not sucked the cow. It should have the fresh warm milk for a week, then warmed half-skimmed milk for a time, and finally warmed skimmed milk. While the weather is cool, the milk should be warmed and given a little sweet; well boiled linseed-meal gruel is an excellent addition to the milk.

Swine.—A farrowing sow should be littered with chaff or finely cut straw in a dry warm pen. It would pay where many brood sows are kept and early pigs raised, to have a stove in the piggery. Highly bred pigs are often tender and delicate, and warmth may save a litter that would otherwise be wholly lost. Generally, a close warm pen will be sufficient, as few other young animals are better able to take care of themselves than pigs.

Sheep and Lambs.—The draft upon the nursing ewes should be met by a supply of nutritious food. The kind of food should be suited to the kind of sheep. Merinos will consume corn without injury, but the heavier bodied sheep will do better on a mixed food. A bushel of corn, with the same quantity of oats, or rye and bran, ground together, and mixed with a bushel of linseed oil-meal, is a good feed for nursing ewes. One pound a day, with some cut roots or a few potatoes, will help both ewe and lamb. A run in a corn stubble on fine days will be very useful for the whole flock, but not if there is deep snow upon the ground, or the soil is muddy.

Poultry.—It is now time to set hens for early chickens. Warm corners in the stables or barns may be appropriated for this purpose where the other poultry are not permitted to go. The nest box may be carried there quietly at night and the hen left undisturbed. The advantage of having loose nest boxes is, that the box and its occupant may be moved to wherever it is to remain.

Vermin.—It is now that vermin give most trouble. Whenever "cow licks" are seen upon cattle lice may be found. A good remedy consists of an ointment made of a pound each of lard and crude petroleum mixed together with a quarter of a pound of flowers of sulphur. This rubbed along the spine and the inside of thighs of calves and cattle will soon free them from lice. It will also free hogs and poultry from fleas, and is not injurious in any way. Bare irritable spots upon the tails or necks of horses may be also treated with this.

Work in the Horticultural Departments.

As the planting and sowing season approaches, the letters embodying the inquiries, "What shall I plant?" "What shall I sow?" become more numerous. These questions coming from all over the country are difficult to answer, as they cover a wide variety of climate and locality. We have often pointed out the fact that many varieties, especially of fruit, are local, and are not suited for general culture. On the other hand, there are a few kinds that succeed almost everywhere, and though these are not usually of the highest quality, their general adaptability compensates for the lack of great excellence. We repeat here what we have so often stated. The experience of the neighborhood is the best guide. If one undertakes extensive cultivation either in orchard, vineyard, or market garden, he should study the leading works that have been written upon these subjects.

Orchard and Nursery.

The land should have been prepared last fall; but if that was omitted let be done early and well. Order trees at once if not done. When trees arrive, unpack at once and heel them in—which means place them in trenches with the roots well covered with earth; they will remain in this way for weeks without injury. Do not plant in wet soil, or that which is partly frozen. Planting should not be hurried; each tree should be examined; the broken roots trimmed smooth; the tops shortened by cutting back the branches one-half or two-thirds, and then set out with good earth around the roots, which should be well worked in to fill every space.

Apples.—The following list of 20 will answer for most of those who plant for family use: *Summer*—Red Astrachan, Early Harvest, Williams' Favorite, Benoni, Golden Sweet, Carolina Red June. *Autumn*—Gravenstein, Duchess of Oldenburgh, Jersey Sweet, Porter, Keswick Codling, Mangum. *Winter*—Northern Spy, Baldwin, Rhode Island Greening, Esopus Spitzenburgh, Roxbury Russet, King of Tompkins County, Wine, Jonathan.

Pears.—Dwarf pears, on quince roots, are now little planted, save in gardens—except the Duchesse d'Angouleme, which yields larger and better fruit as a dwarf. The popular pear is the Bartlett; nurserymen say that out of every hundred trees planted 90 are Bartlett. The amateur who has leisure can indulge in a great variety of choice kinds; those who wish fruit for home use and to market the surplus, can take any of the following: *Early*, Doyenne d'Eté, Bartlett, Doyenne Boussock. *Fall*, Duchesse d'Angouleme (on quince), Bell Lucrative, Seckel, Beurre Bosc, Louise Bonne de Jersey (better on quince). *Late*, Beurre d'Anjou, Lawrence, Vicar of Winkfield, Winter Nelis.

Peaches.—Those who cultivate for market will do well to follow the lead of the successful growers. For home use Early Beatrice, Hale's Early, Early York, Oldmixon Free; George the Fourth, Ward's Late Free, and Heath Cling, are among the best.

Quinces.—The apple or orange variety is most popular, but is inferior to Rea's Seedling.

Cherries.—Among the best are Black Tartarian, Coe's Transparent, Rockport, Louis Phillippe, Late Duke, and Black Hawk. Early Richmond is the best cooking variety.

Plums can generally be fruited only where time and labor can be given to destroying the curculio. Some native seedlings are said to mostly escape its attacks; the principal of these is the Wild Goose, of which spurious sorts are sold. Of the European plum, the Green and Imperial Gages, Coe's Golden Drop, Jefferson, and Washington are good varieties.

Mulberries.—Downing's Everbearing, and in mild climates, the Black Persian.

The distances apart for trees varies with apples from 20 to 40 feet, the greater distance being given on strong soils to the spreading varieties. Standard pears 20 to 30 feet; dwarfs 8 to 12 feet. Peaches, plums, and cherries about 15 feet.

Fruit Garden and Vineyard.

The fruit garden should be confined to what are known as the small fruits, and no trees larger than dwarf pears are to be grown in it.

Blackberries.—The Kittatinny is the most generally successful. Wilson's Early is a good market fruit. Set in rows six feet apart, as early as possible. The canes of both blackberries and raspberries grow one year, bear fruit the next, and then die.

Currants.—Versailles, White Grape, and Black Naples. Set 4 or 5 feet apart, and manure well.

Gooseberries are set the same distances; the English sorts rarely escape mildew; Downing's and Houghton's are best for kitchen uses.

Raspberries.—Set in rows 6 feet apart and the plants 4 feet apart. The Philadelphia is most hardy and productive, but the fruit inferior. Clarke, Herstine, Hudson River Antwerp, and Brinckle's Orange are choice sorts, but mostly tender. Highland Hardy is a new kind highly praised; of the black raspberries, the Miami and Seneca.

Strawberries.—After trying various methods, we have adopted cultivation in rows 3 feet apart, the plants a foot apart. When the bed needs to be renewed, the runners are allowed to take root in the intermediate spaces; when well-established, all save one row of these young plants are spaded up. Charles Downing still proves the best family berry for all soils; Wilson is only fit for market. Nicanor is good on heavy soils. Black Defiance is a fine fruit for home use. Triomphe de Gand and Jucunda give fine large fruit on heavy, as does Seth Boyden on light, soils.

Grapes can be grown in the most limited space, and may be trained to a fence, the side of a building, or to a trellis made for the purpose. They may be set from 8 to 12 feet apart, according to the space to be covered. Do not set old vines; those one or two years old are preferable. A young vine should produce but one shoot the first year. Concord is the universally successful variety; the list is large; in our experience Creveling, Barry, Croton, Delaware, Eumelan, Senasqua, and Wilder, have proved the most satisfactory out of 50 varieties.

Kitchen Garden.

Each year many new varieties are offered; do not rely upon any of these for a main crop, but stick to the well tested sorts; buy all the novelties you can afford, as it is interesting to try them. This month is, in northern localities, early enough to start a

Hot-bed.—This is a frame covered with glass, which is placed over fermenting manure which affords heat; earth is placed upon the manure in which seeds are sown, or they are sown in boxes of earth which are placed upon the manure. Stable manure, in a heating state, may be used alone, or with half or more leaves. The bed is often built upon the ground, 4 ft. high, and a foot wider each way than the frame, which is placed upon top. A more economical use of the manure is to build a pit, 2½ ft. deep, and of a size to fit the sashes; this is planked up, the rear side to 12 in. above the surface, and the front towards the south, 4 in. above the surface. It may be filled with all manure, or a foot of leaves may be first put in, then 18 in. of manure, and all trodden down; 6 in. of good soil may be put on, or if boxes are used, only enough to cover the manure. Strips should run from the front to rear of the frame for the sashes to slide upon. The heat is at first violent; when the thermometer shows it is receding from 100°, sow seeds.

Cold Frames are like hot-beds, but set directly upon the ground. They are used to keep half-hardy plants through the winter, and to harden off those started in the hot-bed. They may be used for sowing seeds, and though the plants will not come on so rapidly as in a hot-bed, they will be much in advance of those in the open ground.—Plants now in frames must be hardened by exposure whenever the weather will allow.

Window Boxes, in small gardens, supply the place of a hot-bed or cold-frame. Seeds sown in boxes of earth 3 in. deep, and set in a warm kitchen window, the plants properly watered and thinned, and if need be, transplanted to other boxes of earth, will give an abundance of early tomato and other plants.

Asparagus.—Set plants one foot apart, in rows 3 ft. apart, in well manured soil, covering the crown 4 in. for a garden bed. In field culture set 2x3 or 3x4 ft. Colossal is best.

Beets.—Sow as soon as frost is out. Egyptian and Bassano for early—Long Blood for late.

Beans.—Early Valentine, Newington Wonder, and Dwarf Wax for bush sorts; Giant Wax and Asparagus for pole and snaps; Case-knife and large and small Limas for pole to shell. All are tender.

Cabbage.—Set plants from cold-frame as soon as frost is out. Sow in hot-bed, for second early, Jersey Wakefield, Early Summer, Winningstadt. Later in open ground, Drumhead, Flat Dutch, Drumhead Savoy, and Red Dutch, for main crops.

Cauliflower.—Sow Early Paris or Early Erfurt in hot-bed. Autumn Giant is good late.

Carrot.—Early Horn is best for garden, for either early or late.

Celery.—Dwarf White, Dwarf Crimson, and Boston Market; sow next month in open ground.

Chives are propagated by dividing old plants.

Corn.—Minnesota best early; Triumph best medium; Stowell's good late. Sow only in warm soil.

Cucumbers.—Early Russian and White Spine. Some may be started in pots, turned out later, and yield before those sown in open ground. Green Prickly, for pickles, is sown in June.

Egg Plant.—New York Purple and Black Pekin; sow in hot-bed, and keep warm.

Horse-radish is grown from pieces of root, set late.

Kohl Rabi.—Sow in open ground like cabbages.

Leek.—Sow early in rich soil; Large Flag is best.

Lettuce.—Sow in hot-beds; transplant to open ground when frosts are over—transplant any that

was wintered over. Early Simpson, Hanson, and Tennis Ball; make sowings in succession.

Melons.—Cassaba, Ward's Nectar, Prolific Nutmeg, and White Japan, are all good; sow in rich hills 6 ft. apart, when the soil is warm.

Onions.—South of New York onions succeed best from sets; plant early in very rich soil in drills 15 in. apart. When they can be grown from seeds sow the same distance apart; the soil cannot be too fine and rich; sow early. Wethersfield Red, Early Red, and Yellow Danvers are standard sorts. For gardens potato and top onions are often used, set in drills 15 in. apart, and 4 in. apart in drill.

Parsley.—Sow the Double or Moss Curled early in open ground, or gentle hot-bed.

Parsnips.—Sow Hollow Crowned as soon as the soil can be worked, in drills 18 inches apart.

Peas.—Carter's First Crop, or some other round pea may be sown, when the ground thaws. Alpha is the earliest of the wrinkled peas, but needs warmer weather. When Champion of England comes, no other pea is wanted. Little Gem, Premium Gem, and Blue Peter are good dwarf sorts, requiring no sticks, and useful to fill odd spaces.

Peppers.—Squash for pickling, and Sweet Mountain for stuffing, may be sown like egg plants.

Potatoes.—Put some early sort in a warm place to sprout, and plant for early as soon as frost is out. Alpha and Snowflake are new and very early. Early Vermont and Early Rose a little later, and good.

Radishes may be sown very early in open ground, or may be forced in a frame. French Breakfast, Early Turnip, and Olive-shaped are good short varieties; the Long Scarlet for long.

Salsify and Scorzonera, there is but one variety of each, sow the same as parsnips.

Spinach.—Uncover that wintered over when heavy frosts are passed, and hoe between the rows. Sow seed of Round-leaved early; New Zealand, for midsummer, may be sown in May.

Squashes.—Summer Crookneck is the best bush. Boston Marrow, Yokohama, Hubbard, and Butman, are favorite late sorts. A few for early may be started under glass in pots or on sods.

Tomatoes.—Sow in hot-bed and transplant to boxes or another hot-bed, or where there are but a few, to small pots; the object is to get a strong stocky plant, to set out as soon as it is safe. Conqueror and Canada Victor for early, and Trophy for the rest of the season, have not been excelled.

Turnips.—White Dutch, or Red Top Strap-leaf, for early, and Long White French, is the best late. Get in the early sorts as soon as the ground is ready.

Flower Garden, Lawn, Greenhouse, etc.

Being obliged to give unusual space to other departments, these can receive but little attention. In the flower garden the work is mainly that of preparation, as given in former months....In the greenhouse the increasing heat of the sun will require care in ventilation. Insects will increase rapidly, and must be kept under. Propagation should now be pushed, to give a full supply of bedding plants for the borders.

Horticultural Notes for the Southern States.

Fruit Trees, such as apples and others of tardy vegetation, can still be transplanted, but the chances of success diminish with every day's delay. Late transplanted trees must be headed back closely. Mulch such trees well, to counteract the effect of the dry weather, which, three years out of five, is likely to happen in April or May in this section.

Grape Vines need attention towards the end of the month, remove suckers and tie up young shoots. Avoid planting cotton or grain crops in vineyards, as the vines need all the potash which the soil contains. In young vineyards of *Scuppernong*, cow-peas may be sown in rows to advantage; do not allow them to go to seed, but harvest for forage.

Peach Trees of which the collar has been left exposed during winter, must again be hilled up. Draw the earth up in a cone at least 8 to 10 inches high, previously throwing a handful of ashes around the collar, as a preventive against the borer.

Tomatoes, etc.—Systematic gardeners will of course have provided a full supply of tomato, pepper, and egg plants, to set out after the 25th of the month. It is unsafe to plant out sooner, unless protected in case of cold weather. It is not always a frost which injures tender plants, the effects of the March winds are equally as destructive.

Water Melons must be planted by the middle of the month in the middle sections, and earlier as we progress southward. Of late years the raising of melons for the northern markets, has become a noted item in the products of the south. In June the early crop is shipped from Florida, but the bulk of it, and the better portion, is harvested in July. The *Rattlesnake* variety, known in New York market as the Augusta melon, is conceded to be the best for shipping.

Bedding plants of the more robust classes, such as Geraniums, Heliotropes, Verbenas, etc., may be bedded out towards the end of the month, others more delicate must remain in-doors for some weeks longer, hence all such must be gradually hardened off by receiving all the ventilation possible.

THE AGRICULTURAL "EXPERIMENT STATION," AT THARANDT, GERMANY.

In a remarkably picturesque region, just out of the famous city of Dresden, in Saxony, 160 miles southeast of Berlin, cozily nestled between the hills, lies the little village of THARANDT. With its romantic scenery, its ruins of ancient castles on the crest of a hill, and below, its attractive villas, its quaint German houses, large roofed, low studded, many windowed, and withal, its delightful walks and pleasure grounds, it is a charming place, as many a tourist will bear witness. But to the student of agriculture the greatest attraction is found in and about the large building in the center of our engraving. This has long been the seat of a "School of Forestry," for many years under the direction of the illustrious COTTA. In connection with this is an "arboretum," containing over 1,000 kinds of trees and shrubs. (The agricultural department of the school has been lately removed to Leipsic). Here is the home and place of the life-long labors of STOCKHARDT, whose text-book of chemistry has been studied by many American youth, and his other works on the science of agriculture are known and read and followed in practice, the world over. His house is on the hill, a few rods to the left of the ruins, and his experiments have been made on the lands about, and in his laboratory in the school building. In this same building have labored the now noted botanist, SACHS, the chemist, HELLRIEGEL, and, if we mistake not, our own Professor STORER, who is doing such grand work for agricultural science in the "Bussey Institution" of Harvard University. Of more special interest to us just now, however, is the fact that here is the "*Tharandt Agricultural Experiment Station*," which has for years been under the direction of DR. NOBBE, some of whose exceedingly interesting and instructive experiments are described and illustrated on page 88 of this paper. Dr. NOBBE's laboratory and study are in the right end of the large building, and hard by, to the right, stands the glass-house in which the experimental plants were raised. This glass-house, built specially for such work, has a narrow-gauge iron track at the end door, on which runs a small platform car holding the jars shown on page 88; thus the plants can be easily taken to the open air on pleasant days, and run under shelter again at night, or when threatened by wind, dust, or rain. Whenever any of our readers go to Dresden, as thousands do, they should not fail to visit THARANDT. They will meet from Dr. STOCKHARDT a reception as kindly as his spirit is earnest and his labors successful.

Commercial Matters—Market Prices.

Gold has been up to $113\frac{3}{4}$, and down to $112\frac{1}{4}$, closing Feb. 12 at $112\frac{1}{4}$, as against $112\frac{1}{2}$ on Jan. 13. The movements in domestic produce, thus far, this year, though not up to the expectations of operators, in all instances, have been, as a whole, relatively much more satisfactory than the business in general merchandise. The course of gold has been rather adverse to the export trade, but ocean freights have been ruling easier, tending to stimulate purchases for shipment. Foreign advices toward the close were more favorable for the Breadstuff interests, particularly so for Wheat. Dealings in Grain at the Produce Exchange have been quite largely on the basis of the recently established New York grades, with which operators are becoming more familiar from week to week. Nearly all current receipts of grain by rail are thus graded, and certificates issued to represent the grades and holdings of the several receivers, which certificates are transferred on the closing out of the property by sale. Options for future delivery have formed quite a feature in the month's transactions in Corn, the options having reference, in all instances of actual sales, to new mixed western, New York inspection....Flour, Wheat, and Corn have been moderately active, through the past month, closing with more firmness. The export inquiry—though somewhat fitful—has been fair The Wheat purchases for shipment have been, in good part, for Portugal. Rye has been quiet and weak as to values. Barley has been freely dealt in at variable prices, closing much lower and irregular. Peas and Oats have been moderately sought after at current rates. A very slow movement has been reported in Buckwheat and Buckwheat Flour at about steady figures....Provisions have been in moderately active request, closing, in the instance of hog products, generally, much stronger in price. Butter and Cheese and Beef, also firmer. Eggs,

decidedly lower, and in very liberal supply; demand comparatively moderate....Cotton shows less firmness, on a restricted trade....Wool has been fairly active, but toward the close quoted easier in price, under more urgent offerings of supplies....Tobacco has been in moderate demand and quoted about steady....Seeds have been moving rather slowly. Clover closed lower, on accumulating supplies....Hops in more request and held higher....Hay and Straw easier, on a light inquiry.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our daily record during the year, show at a glance the transactions for the month ending February 14, 1876, and for the corresponding month last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 d's *this* m'th	211,000	1,007,000	1,309,000	13,500	425,000	411,000
25 d's *last* m'th	332,000	735,000	1,017,000	39,000	231,000	593,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 d's *this* m'th	287,000	1,694,000	2,226,000	28,000	296,000	714,000
25 d's *last* m'th	393,000	2,814,000	1,871,000	47,000	284,000	1,918,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1876	211,000	1,007,000	1,309,000	13,500	425,000	411,000
26 days 1875	216,000	513,000	2,811,000	9,200	218,000	374,000
26 days 1874	402,000	3,175,000	1,004,000	61,000	106,000	895,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
28 days 1876	287,000	1,694,000	2,226,000	28,000	296,000	714,000
26 days 1875	279,000	2,096,000	2,907,000	31,000	142,000	1,119,000
26 days 1874	386,000	2,312,000	1,797,000	131,000	813,000	1,437,000

3. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Feb. 7, 1876	5,369,611	566,331	89,857	465,205	922,586	352,737
Jan. 10, 1876	5,802,293	603,982	100,741	325,191	1,080,300	307,433
Dec. 7, 1875	5,878,036	816,962	99,908	305,961	1,252,005	258,364
Nov. 8, 1875	3,219,457	1,112,998	79,355	277,400	815,591	249,986
Oct. 11, 1875	2,382,502	1,682,246	10,910	21,688	439,698	261,428
May 11, 1875	669,804	1,542,924	16,124	16,337	545,209	229,655
Jan. 11, 1875	3,675,122	1,019,900	50,889	191,470	877,014	145,617
Nov. 9, 1874	3,680,141	1,727,540	19,123	117,185	794,722	135,882

4. *Exports from New York, Jan. 1, to Feb. 10.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
1876	207,647	1,208,121	1,292,314	15,387	——	33,756	125,068
1875	179,882	1,366,529	1,412,517	——	90	11,334	9,784

CURRENT WHOLESALE PRICES.

	Jan. 13.	Feb. 14.
PRICE OF GOLD	112 7-8	112 7-8
FLOUR—Super to Extra State	$4 30 @ 5 85	$4 25 @ 5 85
Super to Extra Southern	4 20 @ 8 50	4 25 @ 8 75
Extra Western	4 85 @ 9 80	4 90 @ 9 75
Extra Genesee	5 75 @ 6 75	5 75 @ 7 00
Superfine Western	4 20 @ 4 65	4 25 @ 4 75
RYE FLOUR	4 10 @ 5 40	4 10 @ 5 05
CORN-MEAL	3 00 @ 3 75	2 75 @ 3 50
BUCKWHEAT FLOUR, ₩ 100 lbs	1 90 @ 2 30	1 75 @ 2 25
WHEAT—All kinds of White	1 30 @ 1 32½	1 35 @ 1 55
All kinds of Red and Amber	93 @ 1 45	90 @ 1 47½
CORN—Yellow	63 @ 73	63½@ 70
Mixed	55 @ 73	59½@ 72
White	64 @ 73	60 @ 72
OATS—Western	44 @ 52	44 @ 52½
State	45 @ 52½	45 @ 52½
RYE	88 @ 97	86 @ 92
BARLEY	80 @ 1 35	70 @ 1 30
BUCKWHEAT, ₩ bush	58 @ 60	58 @ 60
HAY—₩ 100 lbs	75 @ 1 12½	70 @ 1 10
STRAW, ₩ 100 lbs	60 @ 1 20	60 @ 1 15
COTTON—Middlings, ₩ lb	13¼@ 13⅝	13 @ 13¼
HOPS—Crop of 1875, ₩ lb	10 @ 15	12 @ 20
FEATHERS—Live Geese, ₩ lb	35 @ 58	32½@ 60
SEED—Clover, ₩ lb	13 @ 13½	13½@ 14½
Timothy, ₩ bushel	2 40 @ 3 00	2 45 @ 2 85
Flax, ₩ bushel	1 65 @ 1 70	— @ 1 65
SUGAR—Refin'g & Grocery ₩ lb	6⅝@ 9¾	6½@ 9¾
MOLASSES, Cuba, ₩ gal	25 @ 38	22 @ 37
New Orleans, new crop, ₩ gal	45 @ 62	45 @ 63
COFFEE—Rio (Gold)	16¼@ 19	15 @ 18
TOBACCO, Kentucky, &c., ₩ lb	6 @ 25	6 @ 25
Seed Leaf, ₩ lb	6 @ 25	6 @ 25
WOOL—Domestic Fleece, ₩ lb	28 @ 60	27 @ 58
Domestic, pulled, ₩ lb	26 @ 50	25 @ 48
California, clip	14 @ 33	13 @ 32
TALLOW, ₩ lb	9 @ 9¾	8¾@ 9¼
OIL-CAKE—₩ ton	41 50 @45 50	— — @43 00
PORK—Mess, ₩ barrel	20 75 @21 00	— — @22 50
Prime Mess, ₩ barrel	19 00 @19 50	20 75 @22 00
BEEF—Plain mess	10 00 @11 50	10 50 @12 00
LARD, in trcs. & barrels, ₩ lb	12½@ 13¼	12¾@ 13¼
BUTTER—State, ₩ lb	20 @ 35	22 @ 38
Western, ₩ lb	14 @ 33	14 @ 33
CHEESE	4 @ 13¼	5 @ 14
BEANS—₩ bushel	50 @ 1 95	50 @ 1 85
PEAS—Canada, free, ₩ bu	1 20 @ 1 23	1 15 @ 1 20
EGGS—Fresh, ₩ dozen	27 @ 32	15 @ 20
POULTRY—Fowls	7 @ 19	10 @ 19
Turkeys—₩ lb	12 @ 19	12 @ 19
Geese, ₩ pair	1 25 @ 2 50	1 50 @ 2 50
Geese, ₩ lb	6 @ 14	10 @ 14
Ducks, ₩ pair	55 @ 1 25	60 @ 1 25
Ducks, ₩ lb	9 @ 18	10 @ 20
Roosters, ₩ lb	— @ —	6 @ 9
GROUSE, ₩ pair	40 @ 90	40 @ 1 25
PARTRIDGE, ₩ pair	40 @ 70	40 @ 1 25
DUCKS, Wild, ₩ pair	80 @ 1 50	40 @ 2 75
QUAIL, trapped, ₩ dozen	75 @ 2 25	1 00 @ 3 25
HARES, ₩ pair	20 @ 30	20 @ 35
RABBITS, ₩ pair	20 @ 30	25 @ 40
VENSION, ₩ lb	7 @ 16	— @ —
TURNIPS ₩ bbl	75 @ 1 00	75 @ 1 00
CARROTS, ₩ bbl	— @ —	1 00 @ 1 25
BEETS, ₩ bbl	— @ —	1 00 @ 1 25
CABBAGES—₩ 100	3 00 @ 7 00	3 00 @ 6 00
ONIONS ₩ bbl	1 25 @ 3 25	1 00 @ 3 00
POTATOES—₩ bbl	75 @ 1 75	75 @ 1 75
SWEET POTATOES—₩ bbl	1 00 @ 2 75	1 50 @ 3 25
BROOM-CORN	4 @ 8	3 @ 11
PEARS, per box	4 00 @ 6 00	4 00 @ 4 50
GRAPES, ₩ lb	2 @ 8	3 @ 9
APPLES—₩ barrel	1 75 @ 3 25	1 50 @ 3 25
CRANBERRIES—₩ bbl	7 00 @10 25	8 50 @12 50
SQUASH, ₩ bbl	50 @ 1 25	75 @ 1 25
CAULIFLOWER, per bbl	1 50 @10 00	— @ —
ORANGES, Florida, ₩ bbl	— @ —	6 50 @12 00

New York Live-Stock Markets.

Beeves.—The course of the market for the past month has been downward. The causes for the decline have been chiefly the large arrivals of dressed beef from Colorado and Chicago, which have been sold from 4 cents per pound for forequarters up to 7@8 cents for sides, the large arrivals and the receipt of a lot of poor distillery cattle from the Chicago "crooked whiskey" manufactories, which have been seized by the government. The mild weather has had its effect, and also the poor condition of stock arriving. Few first-class beeves have come to hand. At the close the lessened receipts helped to improve prices a fraction on good stock. Poor cattle remaining dull and low, and selling at 3½c.@4c. per lb. live weight for bulls; 9½c.@10c. per lb. for native steers to dress 55 lbs., and 12½ for prime cattle dressing 56 to 57 lbs. per gross cwt.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
Jan. 17	7,545	112	1,060	31,275	29,008	69,000
Jan. 24	9,014	91	750	25,976	29,073	64,904
Jan. 31	9,248	132	1,050	23,561	23,095	57,087
Feb. 7	8,921	96	655	29,294	21,661	61,187
Feb. 14	6,539	93	761	20,383	23,187	51,163
Total for 5 Weeks	41,267	524	4,296	131,310	126,024	304,021
do. *for prev. 4 Weeks*	27,485	259	3,189	76,342	85,973	193,258
	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	
Average per Week	8,253	105	859	26,262	23,337	
do. do. *last Month*	6,871	67	797	19,085	21,498	
do. do. *prev's Month*	8,901	93	1,114	23,710	32,367	

The prices for the past five weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
Jan. 17	8¼@13¼c.	10 @12 c.	11 c.
Jan. 24	7¾@13½c.	9¼@13 c.	10¾c.
Jan. 31	7¾@13¼c.	9¼@11¾c.	10½c.
Feb. 7	7¾@13¼c.	9 @11 c.	10 c.
Feb. 14	8¼@13 c.	9¼@11 c.	10¼c.

Milch Cows.—The demand for cows has been steady, and prices have improved, notwithstanding an unfavorable market for milk and for beef cows. At the close, stock worked off heavily and prices fell off. Selected cows sold for $75@$80 per head. Good cows brought $70 and poor $50@$60....**Calves.**—Good veals have been scarce and high, selling readily at 10¼@11 cents per pound through the month. Fair to good veals have been in better supply and slower demand. The market closes fairly at 7c.@9c. per lb. live weight for common veals, and $10@$13 per head for grass calves....**Sheep and Lambs.**—In spite of large receipts this class of stock has sold freely at advanced prices until near the close, when the decline was fully ½c. per lb. Fine sheep which sold at 8¼c. per lb. two weeks ago, sold at the close at 7¾; fair to prime at 6½c.@7c. per lb., and poor went at 5c.@5¼c. per lb. live weight....**Swine.**—The market for hogs has been weak and strong alternately. Dressed hogs were weak as we close, selling ¼ below last week's prices at 8¼c.@9¼c. for western, and 10¼c. for city. The last sale of live hogs was at 8½c. per lb.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	22.00@ 24.00
Ground Feed, per ton	22.00@ 24.00
Linseed-oil-cake, western, per ton	45.00@ 46.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per ₩	3@ 4

Prices of Fertilizers.

Peruvian Guano (10 per ct. ammonia), per ton	$54.00@$56.50
" " (Rectified), per ton	61.50
Mapes' Superphosphate (mineral), per ton	30.00@ 35.00
" Bone Superphosphate, per ton	40.00@ 45.00
" Prepared Fish Guano, per ton	40.00@ 45.00
Fish Guano (crude in barrels), per ton	24.00
Bone Black, per ton	23.00@ 28.00
Bone Flour, per ton	40.00@ 45.00
Rawbones Ground (pure), per ton	38.00@ 40.00
Rough Bones, per ton	22.00@ 25.00
German Potash Salts, (25@35 per cent), per ton	20.00@ 25.00
Gypsum, Nova Scotia, ground, per ton	8.00@ 9.00
" in barrels, per bbl	1.25
Wood Ashes, per bushel	16 c.@18 c.
Nitrate of Potash (95 per cent.), per lb	8½c.@ 9 c.
Chloride of Potassium, (muriate of potash), lb	3¾c.
Nitrate of Soda, per lb	3¾c.@ 4 c.
Sulphate of Ammonia (25 per cent.), per lb	4¾c.@ 5¼c.
Dried Blood or Dried Meat per unit of ammonia	3 c.@ 4 c.

MARCH

Is a Good Month in which to Secure one of

The Valuable Premiums.

We have the testimony of very many of the thousands who have taken our Premiums in past years, that they have been greatly surprised at the ease with which the work has been done. Every reader of our paper, who desires to do so, can obtain a sufficient number of subscribers to secure one or more of these Premiums, which average in value from 75 cents to $650.00. Among the articles offered, are: **Gold Pens and Pencils—Watches—Fine Table Cutlery—Elegant Silver-plated Articles—Scissors in Cases—Pocket Knives—Boy's Wagons—Children's Carriages—Floral Sets—Microscopes—Melodeons—Pianos—Guns—Rifles—Books, etc. etc.** Look over the List, if you have received one, and if not, send for our **Illustrated Premium List,** and see how much you can get for a little well directed effort.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

☞ N.B.—The New Postage Law.—On account of the new postal law, **which requires pre-payment of postage by the publishers,** each subscriber must remit, in addition to the regular rates, **ten cents for prepayment of yearly postage by the Publishers, at New York.** Every subscriber, whether coming singly, or in clubs at club rates, will be particular to send to this office postage as above, *with his subscription.* Subscribers in British America will continue to send postage as heretofore, for pre-payment here.

Remitting Money: — Checks on New York City Banks or Bankers are best for large sums; make payable to the order of **Orange Judd Company. Post-Office Money Orders** for $50 or less, are cheap and safe also. When these are not obtainable, **register** letters, affixing stamps for postage and registry; put in the money and seal the letter in the presence of the postmaster, and *take his receipt for it.* Money sent in the above three methods is safe against loss.

Bound Copies of Volume Thirty-four are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the last nineteen volumes (16 to 34) will also be forwarded at same price. Sets of numbers sent to our office will be neatly bound in our regular style, at 75 cents per vol. (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

Speak a Word for the German American Agriculturist.—For 17 years past an edition of this journal has been issued in the German language for the benefit of the large number of our citizens who read only the language of Vaterland. It contains the engravings and all the principal reading of the English edition. Several pages devoted to the advertisements in the English edition, are in the German edition occupied by a special extra Department, edited by the Hon. Frederick Münch, a distinguished cultivator of Missouri, which gives it additional value to the German reader. The colored cover only is omitted from the German edition. Many of our subscribers take the German copy for their gardener or their workmen. Will our friends make this edition known to their German friends and neighbors? Having the advantage of the engravings of the English edition, it is larger, better, and cheaper, than it could be if published independently. Both editions are issued on the same terms, and clubs may consist of either edition, or a part of both.

Peach Culture at Madison, Ind.—The utility of an article is by no means confined to the instruction it may contain, but the matters it suggests or calls out, are often of more value than the article itself. In November last we published an article which gave some reasons for the unprofitableness of last year's eastern peach crop. This is used by Mr. Argus Dean, as a basis for a series of three longer articles in the Madison, Ind., Evening Courier. Mr. D. very judiciously points out such parts of our article as do not apply to peach culture in Indiana, and treats the whole with so much intelligence, that we regret that we can not give a place to his remarks. Madison is an important peach center, and Mr. Dean is one of its principal growers.

"At as Great a Length as Possible," is the way a reader who asks a question wishes us to reply. There are many persons who mistake quantity for quality, and estimate the value of an article by its length. In this busy world we try to get information into as short a space as possible, and do not use two lines if the story can as well be told in one. Our correspondent should take an English journal, in which the writers rarely take anything for granted, but on the simplest subject go back to the time of William the Conqueror—if not to that of the Creation.

Our Fowls and Other Things.—Whenever we publish an engraving of *fowls*, or poultry of any kind, we get letters actually by scores, asking the price of such birds, and we also have numerous requests to send a catalogue of "your fowls." This is not confined to poultry, though for a few weeks the letters have been more numerous in relation to these, but it is the same thing with cattle and all kinds of animals, as well as with fruits, flowers, plants, and vegetables. We are led to infer two things. *First,* that the owners of poultry (and other things) are very remiss

in advertising, or people would know where to apply. The letters we have had about these during the last two months, would, if followed by purchases, make a good business for any poultry dealer. *Secondly*, people do not generally understand that we illustrate and talk about such things, because we think it will benefit our readers to know of them, and that neither publishers nor editors have for sale, or have in any way the slightest interest in the sale of any bird, beast, or other thing that is noticed in our columns, except it be books, and Crandall's Blocks, etc., for children, which are specially advertised.

The Way of Bulbs.—"F. O. W.," Mass., asks if after Tulips, Hyacinths, etc., have bloomed, they form new bulbs. Yes. If the bulbs have been forced by blooming in the house in water, they are too much exhausted to be of use. If they were in pots of earth, then, when the ground is open, the bulbs may be turned out and left to themselves, and in a year or two they will give fair flowers, but never so good as at first. If you take up a tulip bulb, planted last fall in the open ground, after the leaves have faded, you will find it like the one you planted, but it is a new bulb that replaced the old one.

A New Cucumber, Tailby's Hybrid.—It is not our custom to say much about new varieties of vegetables until we have tried them. Our previous experience has been that when Mr. J. J. H. Gregory, of Marblehead, Mass., says that he has tried a squash, and pronounces it good, we on trial are able to

say ditto. As the cucumber belongs to the same family with the squash, we are disposed to accept his judgment as to Tailby's Hybrid, and when he says "it is unsurpassed by any and equalled by few," and that it unites the good qualities of the English sorts with the hardiness of our American varieties, we are sure it is worth trying.

Heating our Buildings.—Our friend J. M. Jordan, the well known horticulturist of St. Louis, Mo., is quite convinced that our buildings will ultimately be heated by hot water pipes, and wishes us to urge upon manufacturers of such apparatus, to make a full display of them at the Centennial. We are sure that here is a fine field for inventors, and when we consider the great improvements made of late years in heating greenhouses, we have hopes that a cheap plan may be found for warming dwellings in a similar manner.

Black-Leg in Calves.—"C. M.," Algona, Iowa. The best fed calves are the most subject to "black-leg" or black-quarter, (carbuncular erysipelas). They are most subject to it in the warm damp weather of early spring, and a mild winter is greatly provocative of diseases of this kind. Their is little danger if the calves are kept from abundant green food until they are gradually used to it, and are occasionally physicked as spring approaches with a dose of salts (4 ounces), with an ounce of ginger in it. A regular supply of salt should be given to them. Fair, moderate feeding is better than an excess for young animals, and some linseed is a valuable addition to their feed.

Heavy Essex Pigs.—"E. N.," Batavia, Ill., sends the weight of an Essex pig, 27 months old, that weighed alive 630 lbs., and dressed 536 lbs., also of two others about 17 months old, weighing 575 and 520 lbs.

Do Lice Produce Fleas?—"C.," Bowling Green, Ky., asks this question. We think a very little reflection would have been sufficient to enable our correspondent to decide this matter for himself. Lice are very different insects from fleas, both in their form and habits, and each kind reproduces itself. The fact that fleas are found in the bedding of hog pens, and not upon the hogs, while they are found upon dogs, cats, and poultry, is explained by the habit of the fleas to hide beneath some dense covering, and the thin coat of the hog does not furnish sufficient shelter for them, they therefore gather anywhere except upon that animal.

When to Set a Saw.—"J. H., jr.," New Orleans. It is usual to file the saw first, and set it afterwards, although some sawyers and mechanics do the reverse. It matters very little which is followed.

Binding Grain with Wire.—"M. N.," Annapolis, Ill. This practice will scarcely ever become popular, on account of the danger from the use of the bands. Already a cow that was sold for $35,000, has been lost through swallowing a piece of a wire band from a bale of hay, and doubtless many less valuable animals would be lost, were the use of wire bands to become prevalent. They are also dangerous in the thrashing machine. Twine would be perfectly safe, and no doubt that inventors will contrive to substitute it for wire.

Flowers in Church.—While some denominations have long decorated their churches with flowers on Easter and other days, others have rigidly excluded them at all times. The custom in this respect has greatly changed within the last 20, or even 10 years, and now there are few churches in which flowers are not to be found on especial Sundays, and in some they are present every Sabbath. We need not argue the appropriateness of this kind of decoration, for its general adoption is evidence of that, and some churches go to a great expense to provide it. To our taste expensive and elaborate decorations are less pleasing than more simple ones. As an example of what may be done by one woman, who has her heart in the matter, we may cite that of the Methodist E. Church, at Middletown, Conn., where, year after year, summer or winter, and regardless of the weather, the eyes of the worshippers have been greeted each Sabbath morning by a display of flowers in some form. Sometimes a vase loosely filled; on other occasions a cross of green, studded with flowers, each week presenting some new and pleasing change, and the kinds varying with the season; ferns and wild flowers at times are freely used; the great variety presented, is as pleasing as the regularity and constancy with which these offerings are contributed. There is no expense attending this beautiful decoration, it being done entirely by one lady, who, though living at a distance from the church, never fails to present each Sabbath morning, these flowers of *her own raising* and arranging. It is with Miss Ellen Rockwell entirely a labor of love, and she is amply repaid for her trouble and care, by knowing the pleasure she gives others by reminding them of the land where "everlasting spring abides, and never withering flowers."

Gold Hunting.—"O. R.," Gibson, Pa. Gold mining is an attractive but a delusive occupation. More money has been spent in procuring our supply of gold than has been gained by it. A large amount of capital is needed to open a gold mine, and those who work in the mine, have a hard and dangerous labor to perform for comparatively poor wages. Maps and descriptions of lands in the Arkansas valley can be had on application to the Land Commissioner of the A. T. and Santa Fe R. R, Topeka, Kansas.

Size of Poultry House.—"H. A. M.," Hudson, N. H. For 200 fowls, the roosting house should be 24 feet long, and 12 feet wide; the sitting house should be 16x12. For laying places, there should be several retired, small houses, or low sheds, plentifully furnished with boxes, and cut chaff. These are better than one stated house, as hens like a frequent change of base, and would rather steal a nest than have one given to them. It is better to humor than to thwart their peculiarities.

As to North Carolina.—Several correspondents are informed that the address of "T. B. W.," whose communication appeared a short time ago in the *American Agriculturist*, is T. B. White, Horse Cove, Macon Co., N. C. This is a new settlement of eastern men in that locality, in which the lands are good, the climate mild, and fruit, especially apples, flourishes well. Mr. S. T. Kelsey, formerly a prominent fruit grower of Emporia, Kansas, is planting largely of apples.

Pure Spices.—The general adulteration of spices was mentioned in our columns some months ago, and the item catching the eye of C. E. Andrews & Co., Milwaukie, they sent us a box of their Crocker Mills spices, to show that *all* spices were not adulterated. These have been found upon trial to be satisfactory, and we doubt not they are, as claimed, "Absolutely Pure."

Cure for "Sprung Knees."—"J. M. W.," North Beach, Minn. The only cure for sprung knees is rest; frequent rubbing with a stimulating liniment of creosote and turpentine, one part each, and olive oil, two parts, mix and rub on to the back of the joint, and bandaging will promote a cure.

How to Improve a Piece of Land.—"J. R. D.," New Albany, Ind. Green manuring is an easy method of improving land that has still enough strength left to produce a green crop. To commence, the land might be sown with buckwheat in May next, having been plowed rather deeply early in spring. This may be plowed down in July, and the ground again sown with buckwheat. A few crops grown in this manner would prepare the ground for clover, and if a fair crop of clover can be grown, it can be readily improved after that by taking a few crops of hay, and plowing in the second growth. Perhaps some plaster or lime may be needed to help.....The "pod" sent can not be identified, without a description of the plant it came from. It looks like the fruit of the horse-nettle, *Solanum Carolinense*, which is worse than the very disreputable Canada thistle to get rid of.

Soaking Clover Seed.—"D. N. K.," Lehigh Co., Pa. It would not be advisable to soak clover seed before sowing it. If the weather should be dry or cold afterward, the sprouted seed would be killed. There is no need of soaking, as the seed sprouts very readily. The easiest way of sowing is to do so upon the last snow of spring; every seed can readily be seen upon the snow, and it can be sown very evenly. It soon sinks through the snow, and into the fine cracks of the soil, and when the warm weather arrives, it is in the best position for growing. Upon hill-sides, or land that is liable to be washed by rains, this plan will not be safe.

Sundry Humbugs.

As yet we are unable to say what is to be the leading style of humbug for the present year; for as we have before remarked, there are fashions in humbugs as in other things. At one season gift distributions predominate; again, the pretended counterfeit money men are most numerous, though of late very scarce; again, quack medicines, always abundant enough, seem to overshadow all others; and so on. It can hardly be possible that the advantages offered by the Centennial year, when there will be much travel, and liberal spending of money, will be overlooked by the ingenious swindlers, and they will no doubt, as well as honest traders, be prepared for a harvest; but their plans are not yet developed. We awhile ago thought that bogus Wall street operations were to be the marked feature in this year's humbugs, but they have fallen off wonderfully. The prompt warnings we have given (in this case seconded by the daily journals), the action of the postal authority in showing that many of the Wall street "put and call" men were the very same as those formerly active in the sawdust swindle and counterfeit money business, and the introduction of a bill into the legislature to prevent this form of gambling, have all had their effect in deterring these chaps; fewer of them advertise than formerly, and these are much less bold than at first, and resort to subterfuges. There is no stronger illustration of the power of an inordinate love of gain than the fact that there can be found persons all over the country who will believe the stories of the wonderful profits made on Wall street, and will trust their money to perfect strangers to use in a kind of gambling, which, if followed in good faith, is exceedingly hazardous, and much more likely to lose than win.

"IS THIS A HUMBUG?"

is the question that meets our eye many times every month. Circulars, pamphlets, and advertisements cut from papers are sent to us in large numbers; on many of these is the comment, "Here is another humbug, show it up;" but with many others we find an inquiry which may be condensed into, "Is this a humbug?" In such matters there is a very safe rule. If a scheme or proposition of any kind presents itself in such a manner that you feel little confidence in it, and are obliged to ask some one else if it is not a humbug, you may be very sure that is a thing to be let alone. Here is an advertisement of a "Stationery Package and Jewelry Casket," each "casket" containing one or two "valuable pieces of Jewelry." The package sells for 25 cents. A correspondent sends the advertisement, and wishes us to state

"WHAT WE THINK OF IT."

See here, friend Risler, let us take a common sense view of the thing. Suppose you were to go into this "package" business, what would be your object? "To make money, of course," you will say. If your packages are to sell for 25 cents each, what would be the cost of the things you put into them?—"Well, 18 or 20 cents."—But that would not leave you profit enough to pay for these large advertisements.—"Then make them cost 5 or 10 cents."—Exactly, and that is just what these fellows do. You, and every other sensible man, should know that these schemes are carried on to *make money*, and this can only be done by putting into the package things which cost less than the package sells for.—Now and then some of the concerns may, as an advertisement, put in a thing that costs more, so that it may be talked about, but as a

whole, the lot of paper, envelopes, pens, pen-holders, pencils, blotting pads, *and* "valuable pieces of jewelry," do not cost the seller of the package anything like the 25 cents asked for it.

WE CAN OFFER NO HELP FOR IDIOTS.

Some strange cases are presented to us. Here is one. A couple of well-dressed men drive up to the house of a well-to-do young farmer. The strangers are plausible and pleasant; they have to sell the right of a new fanning mill for that county for $1,400. Mr. ——, a well-known farmer in the county, has bought the right for half the county for $700. Well-to-do young farmer knows Mr. ——, would be glad to be associated with him, and the W. T. D. Y. farmer planks down his $700 in cash for the other half of the right. The two well-dressed young men stopped at the next town overnight, and have not been heard of since. All that the victim knows of them is that they were well-dressed, and one of them was named Smith. We are asked if we "have ever heard of them."—"Heard of them!" bless your innocent heart we know these fellows "like a book." They are not always selling fanning mill rights; they keep brokers offices on Wall street; they have real estate offices on other streets; they run lotteries in Texas and Wyoming; they offer counterfeit money in New York; they keep matrimonial offices in Chicago; they run quack medicine shops in Buffalo and other cities; they sell bogus jewelry in Maine. It is just "Mons. Tonson come again," this same old humbug we have known and fought these many years. This well-to-do young farmer has paid $700 for a lesson that he might have had for much less. He does not write us himself, but his neighbor does, and we advise that neighbor, if he does not think the young man sufficiently cured by this operation, to have him put under a guardian. He certainly is not to be trusted with his own property....The readiness with which farmers are caught by such swindlers has been a matter of surprise to us, and we can only account for it by the fact that their isolation keeps them from the knowledge of the wicked ways of wicked men. In their own honesty of purpose and uprightness of dealing, they cannot conceive that a "well-dressed" man, especially one "named Smith," can be less honest than themselves. If farmers could become more social, either through farmers clubs, granges, or other means where they could come together frequently, and know each other well enough to take counsel of one another, they would be less open to fraud.

EYE CUPS AND EAR DRUMS.

We receive complaints from those who have invested money in these appliances, and find them not only of no use, but hurtful, and letters from others who ask our opinion of them. We have but one answer to those who propose to tamper with their own eyes or ears with *any appliances whatever*, and that is "DON'T." How many of those who write us about these things understand the structure of the eye or the ear? These organs are subject to various derangements, and in some cases it is beyond all human power to help them—yet persons are willing to try a mechanical affair, and one which may be really injurious, for an imperfection of the sight or hearing, without first finding out the cause. This recklessness in meddling with these organs, upon which the comfort of life so much depends, is something astonishing. The very same persons who would try these upon their eyes and ears, would not think of repairing their own mowing machine, sewing machine, their kitchen-clock, or even their coffee-mill. Let everything of this kind alone; if eye or ear is at fault, go to a known physician and find out what is the matter. If there is no competent one at hand, go where there is one, but as you value eye or ear, do not tinker with it yourself.

MOREOVER—ONCE MORE—PLEASE NOTICE.

We almost every day receive letters asking about persons living in New York, and who advertise themselves in far off papers as physicians possessing a wonderful ability to cure some particular thing. We know nothing of such persons, and the very fact that they advertise in this manner shows that we do not want to know about them. Have nothing to do with any one who advertises his cures. Our western friends need not think that they alone are cursed with quacks; they abound all through the east, especially in New England, and the wealthy city of Providence, R. I., is their very "Bonanza," a perfect harvest field for all "Blood Doctors," "Clairvoyants," and the whole tribe. A chap calling himself "Dr. Willard, of Boston," has been making a tour of some of the Connecticut towns, from one of which a prominent citizen writes: "He operates by obtaining in advance the address of diseased persons on his route (paralysis and eye diseases a specialty), then representing the call made upon such persons as by request of the local physician, whose name has likewise been previously obtained, he proceeds, if confidence has been secured, to apply to different parts of the body of the patient, coils of simple copper and zinc wires, guaranteeing in all cases a perfect cure. For this service, the charge, *cash down*, is varied, according to ability and credulity of the victim, $15 to $25 being, perhaps, the more common amount. A warrant for his arrest was issued here, but he succeeded in eluding the reach of the officers."

One Way to Save Money.—Do not put postage stamps upon letters to us that are not of sufficient importance to *sign*. It takes all the time that we can possibly command to attend to letters properly signed—those that the writer considers not worth putting his name to, are of no consequence to us, and are as if they had not been written.

One of the little Conveniences.—Some grumbling John Bull once wrote a book called the "Little Miseries of Life," or some such title, in which he had his growl over everything from a missing shirt-button to a creaking door. A book on the comforts of life would be much pleasanter, and were we to write such, we should enumerate among the little conveniences, Mr. J. S. Birch's watch key, which adjusts itself to any watch, and is as handy as can be. In traveling, we have often had occasion to lend it, and never found a watch it would not fit—besides this it is as neat as it is useful.

Stock-keeping on the Plains.—"Subscriber." In a conversation recently with a person engaged in stock-keeping in Wyoming Territory, we were informed that there are very few facilities for young men there who wish to learn the business, unless they have sufficient capital to procure an interest in a herd. Every person there is busy enough in looking after his own interests, and none but experienced help is needed. There are always openings for men with capital to join others in the business, but to commence with less than $10,000 to $20,000, is simply to get in the way of the larger stock men who occupy the ranges.

Scribner's Horticulture.—It has now become the custom for literary journals to give their readers instructions in horticultural matters, and we know of no more amusing reading than the horticultural columns of some weekly and monthly periodicals we could name. The number of persons who know about garden matters, is large, and the number of those who write on such topics, is large also; but the number of those who both know, and are able to write what they know, is surprisingly small. When we took up our advance sheets of the March Scribner's Monthly, and saw the heading "Rural Topics," it was with the thought of "one more unfortunate, rashly importunate,"—but on reading on, we were surprised to find it sense, and when we came to "P. T. Q.," at the bottom, we saw it all. Scribner has had the fortune to capture our friend P. T. Quinn, and make him tell what he knows on rural matters. Here is one magazine at least, out of whose horticultural column we shall not get a bit of fun, but only sound and well considered teaching.

Cincinnati Chamber of Commerce.—Sidney D. Maxwell, Esq., Superintendent of the Cincinnati Chamber of Commerce, favors us with a copy of the 27th Annual Report, being for the year ending August 31st, 1875. This report is filled with a mass of valuable information, regarding the trade of Cincinnati, and statistics of the production of and business in pork, grain, and other produce for the past year, to which we have not space at this time to refer more fully.

The Next Peach Crop.—The peach-growers last year had a disastrous season. In an article published last fall, we showed that one cause of their failure was filling the market with fruit which would at any time be regarded as poor, and which, in a season of abundance, did not pay the freight, but brought the shipper in debt. We are glad to learn from the Maryland and Delaware papers, that the lesson has not been lost upon the peach-growers, some of whom are grubbing up their trees of inferior varieties, and have come to the sensible conclusion to keep all inferior fruit at home. This is right. Good fruit will always bring paying prices; but a large share of the baskets and crates sent last year, were filled with stuff unworthy the name of fruit.

History of the Booth Short-horns.—The publishers of the Farmer's Home Journal, of Louisville, Ky., favor us with a copy of the History of the Rise and Progress of the Booth Herds of Short-horn Cattle, by Wm. Carr, which they have reprinted from the London edition of 1867. This little volume should be in the hands of every breeder and farmer in the country.

Swill for Hogs.—"A. D. F. F.," Washington, D. C. The swill from a hotel, which consists mainly of refuse food, is very good feed for hogs. It would be improved by the addition of 20 pounds of bran and corn meal mixed, to every barrel of it.

Something To Think of....and To Do.

Here are a few random extracts from letters sent by the **16,000** persons who have felt themselves so well paid for the time they have given to securing subscribers for the *American Agriculturist*. A hundred pages of this paper would not contain all the good things that would be freely said by the happy recipients of our Premium Articles. You, reader, and thousands of others, may yet this year get some of these Premiums. Send to the Publishers for an Illustrated List of Premiums, if you have not already received it.

A Widow Lady greatly desired a good PIANO, but was unable to buy one. Seeing the offer of the Publishers of the *American Agriculturist*, she started out one April morning among her friends first, with her copy of the paper, and before returning at night she had a dozen subscribers. She followed this up on other days, making three temporary visits to friends in other towns, and before May closed, she had forwarded subscribers enough to obtain, *free*, and had received one of Steinway & Sons' splendid **$650** Pianos. It cost her nothing but the freight.—Many others have secured similar results. Hundreds, yes, thousands of others may do the same this year. There are millions of people who would be benefited by having the paper urged upon them.

A Postmaster writes: "....My splendid Premium Tea Set far exceeds my expectations....It really cost me nothing, as I got these subscribers by showing it to callers, and they are all pleased with the *American Agriculturist*. I suppose the publishers are pleased, so we are pleased all round...."

A Missouri Subscriber writes: "....My Premium Gun arrived 'safe and sound,' is just what you represented it to be, and I am *well* paid for my trouble in securing the necessary subscribers to obtain it...."

A Missouri Subscriber writes: "The Premium Tea Set is received .. It is a beauty—abundant pay for getting the subscribers....I am going right on to get another Premium...."

An Ohio Subscriber writes: "....Many thanks for the excellent Premium Watch....After trying it as a time-keeper, I can truly say it is 'Good pay for Little Work,' and that getting subscribers for the *American Agriculturist* is time well spent...."

A Pennsylvania Subscriber writes: "....The Premium Microscope came yesterday, and I am already delighted with it. The Premium Watch you sent me two years ago is a splendid time-keeper."

A "Missourian" writes: "....The Premium Multum-in-Parvo Knife is received. I have tested its metal, and find it extra good—and the combination of useful things is a *perfect success*.—I once gave $6.50 cash for a knife similar to this one, but without the screw-driver or gimlet. It was one of Rogers & Son's, not as convenient and no better metal than yours," (which is only $3.50, and which he got *free* for a very little time in collecting eight subscribers.)

Coloma, Ill., Bonds—NOTICE.—All holders of the Bonds issued by the Township of Coloma, Whiteside County, Illinois, are requested to promptly communicate with the undersigned, to the end of securing co-operation in obtaining their just rights. They are advised to give no heed to the efforts made by official or other persons to induce them to sacrifice their interests. The undersigned is intrusted with some of these bonds by a widow and orphans, and proposes to secure their just dues. Full particulars concerning the issuing of these bonds, and of the *individuals* opposing their payment, etc., will appear in due time; until which time farther comment is reserved. ORANGE JUDD, 245 Broadway, New York.

Roots for Pigs.—"G. A. H.," Thompson, Conn. Potatoes or sugar beets are the best roots for swine; the first have 15 to 20 per cent of starch; the second have 8 to 12 per cent of sugar, and both these substances are very valuable for making fat. The potatoes will be more digestible when cooked. A good root-cutter is made by Warren Gale, Chicopee Falls.

Basket Items continued on page 113.

Science Applied to Farming.—XV.

BY PROF. W. O. ATWATER, DIRECTOR OF CONNECTICUT AGRICULTURAL EXPERIMENT STATION, WESLEYAN UNIVERSITY, *Middletown, Conn.*

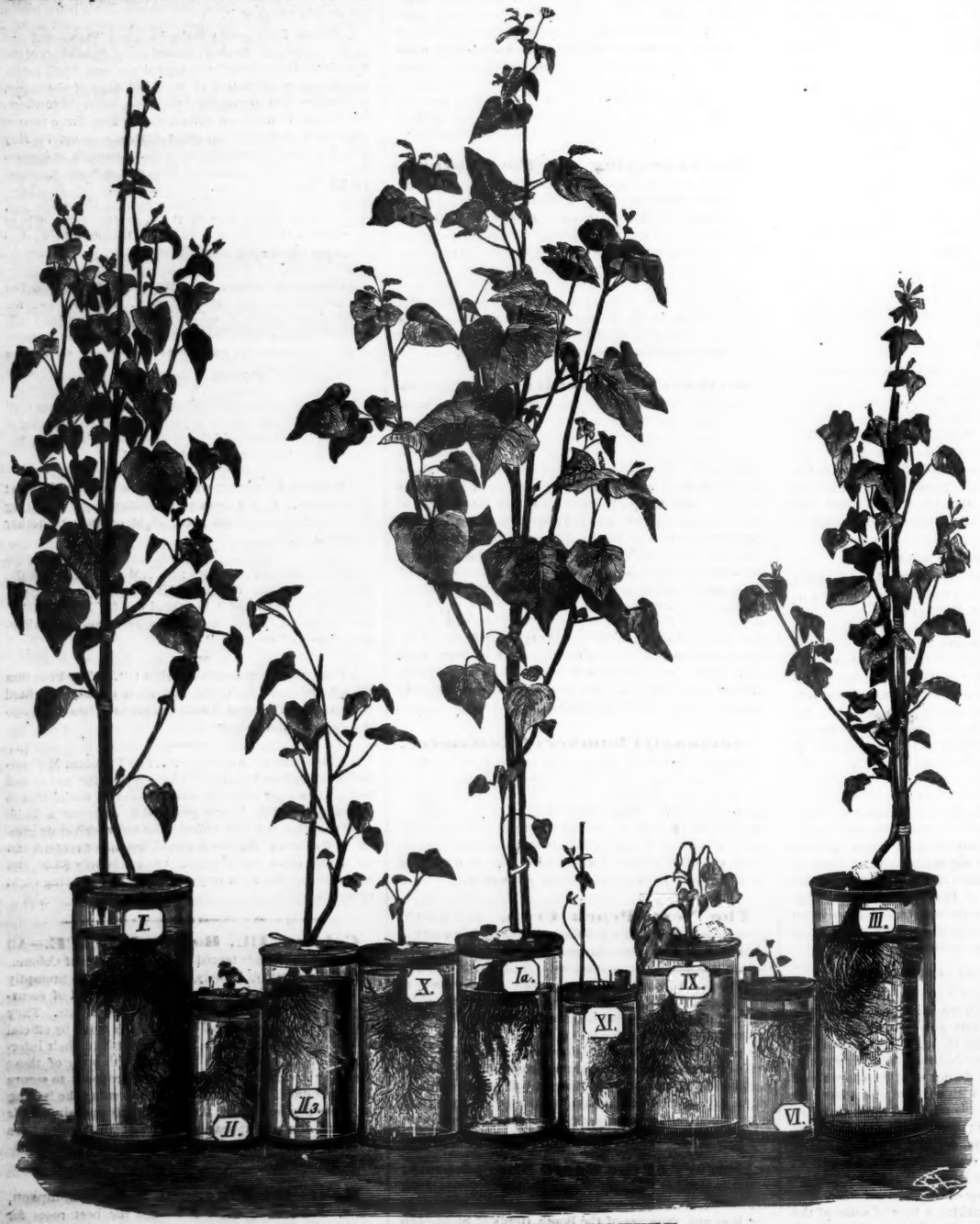
Interesting and Important Experiments on Plant Growth—Essential Ingredients of Plant Food—Potash and Starch—Practical Conclusions—Fertilizers.

The accompanying Illustration is engraved from a photograph of one of a series of experiments performed by Dr. NOBBE and his assistants at the Agricultural Experiment Station at Tharandt in Saxony. They belong to a large number of similar researches, which have been carried on in order to discover what materials are *required* as food by plants, and how the plants use them....Until quite recently no one knew what constitutes the real food of plants, how much of the material of the plant came from the air and how much from the soil, what was needed for fertilizing crops, nor how the required materials could be best obtained in manures. But years of patient work by many investigators in the chemical analysis of plants, soils, and manures, and in the culture of plants in the greenhouse, and of crops in the field, have thrown a vast flood of light upon these dark problems. This work has been done, in large part, in the Agricultural Experiment Stations, and has given us definite knowledge of incalculable value....In order to a full understanding of some of the more important results of these investigations, let me recall to those who are not well versed in the science, a few

Important Facts in Chemistry.

Phosphoric acid combined with lime, as *phosphate of lime*, makes up most of the mineral matter of all bones.—*Sulphuric acid*, (oil of vitriol), with lime, forms *sulphate of lime*, otherwise known as "plaster," or gypsum.—*Silica* is the chief ingredient of ordinary sand. It occurs nearly pure in flint and quartz, and, combined with other substances, in many minerals.—*Nitrogen* constitutes four-fifths of the air, the other fifth being oxygen; and nitrogen also makes up about seven-eighths of *ammonia*, the rest being hydrogen.—Charcoal and lampblack are nearly pure *carbon*.—By *potash* is to be understood the compound of *potassium* and oxygen, and by soda, sodium and oxygen.—Bearing these facts in mind, let me quote the following tersely expressed statement by Prof. S. W. Johnson, of some of the substantial results referred to:

"In respect to the food of plants, it has been settled that *potash*, *lime*, *magnesia*, *iron*, *phosphoric acid*, and *sulphuric acid* MUST be furnished to all agricultural plants through their roots and by the soil, in order to their growth. It has also been shown that soda, silica, and chlorine are not needful for the early growth of grain crops, but that chlorine is essential for the perfection of the seed, and that silica is probably necessary to uniform blossoming and ripening. It is further proved that water must enter crops through their roots; that carbon, which constitutes more than half their weight, is superabundantly furnished by the air; that air and water together yield the materials out of which fully 90 to 98 per cent of crops is built up; and that the soil has to give for their nourishment only the 2 to 8 per cent of mineral matters which remain as ashes when they are burned, and the one and a half to two per cent of nitrogen which they also contain."



EXPERIMENT IN WATER-CULTURE.

BY DR. NOBBE, AND ASSISTANTS, AT THE AGRICULTURAL EXPERIMENT STATION IN THARANDT, SAXONY.

The above engraving we copy from photographs of Buckwheat Plants, grown with the roots immersed in jars containing various solutions of the ingredients of plant-food in water. The plants were supported by perforated corks resting on the covers of the jars, and by upright sticks. In jars I and Ia was a NORMAL SOLUTION, *that is, a solution containing all the essential ingredients of plant-food, including potassium as chloride. The plant in Ia was nearly 3½ feet high. The solution in II was the same as normal solution in I and Ia, except that potassium was omitted in the jar II. The plant was scarcely 3 inches high. The jar II2 commenced as II, that is without potassium, but potassium chloride was afterwards added. VI contained the normal solution, except that sodium was substituted for potassium. IX, X, XI, and III, same as I, except that IX contained no lime, X no chlorine, and XI no nitrogen, and III had nitrate instead of chloride of potassium.*

Essential Ingredients of Plant-food.

In order, then, that any agricultural plant may grow, it *must* have at its disposal, in the soil, besides water, a

certain list of substances, viz.: potash, lime, magnesia, iron, phosphoric acid, sulphuric acid, and some compound of nitrogen. Besides these, chlorine, certainly, and silica, probably, are necessary in many, if not all cases, for the perfection of the plant. If any one of these substances be lacking, the plant will not thrive. With an abundant supply of all, and other conditions favorable, its growth will be luxuriant.

How has all this been learned?

In the first place, in every analysis that chemists make of any plants, be it corn, or grass, or turnips, be it in New England or in Old England—and thousands of these analyses have been made—each one of these substances has always been found. It is fair to suppose, then, that, being always present, they have each a work to do in the plant. Still, this is not positive proof. As every ordinary soil contains all of these substances, is it not possible that the plants may take up some of them in the water it absorbs from the soil, just as a towel, one end of which has fallen into a dish of water, will absorb the water and whatever it holds in solution? This question might be tested by growing plants in soils with one of these substances absent from it, potash for example. But it is difficult to find a soil entirely free from potash. It is easy, however, to dissolve in pure water any or all of these substances, in any desired proportion, and it is well known that plants will grow with their roots in water. In view of these facts, the German chemist, KNOP, some years ago conceived the idea of

Experiments in "Water-Culture."

This consists in raising plants without any soil at all, but with their roots immersed in water, in which are dissolved the soil-ingredients of plant-food. Seeds are germinated, or "sprouted" in pure sand or moist cotton.—At the same time, the ingredients of plant-food, which are to be supplied to the plants, are dissolved in water in the desired proportions, and these solutions put into glass jars. At the tops of these the just germinated plants are placed, properly supported, with their roots dipping into the solutions, and thus allowed to grow.... Nearly all of the experiments of this class have been made by German chemists, prominent among whom have been KNOP, SACHS, NOBBE, STOHMANN, KUHN, and WOLFF....Solutions containing all the soil-ingredients or plant food are called "*Normal Solutions.*" In these, plants are raised as large, as healthy, and in every way as perfect as those grown in the soil. Wolff raised in such a solution four perfect oat plants with 46 stems, and 1,535 well developed seeds. Nobbe obtained a Japanese Buckwheat plant, 9 feet high, weighing, air-dry, 4,786 fold the weight of the seed, and bearing 796 ripe, and 103 imperfect seeds. And Knop used to delight in showing his friends a young oak tree, very small indeed, but the growth of which had been normal, though its roots had been immersed only in watery solutions....The above were obtained in the "normal solutions." What would result if one of the necessary food ingredients were omitted? This is answered in

Dr. Nobbe's Experiment.

The Engraving with the explanations shows that in the normal solution the buckwheat was vigorous and healthy, and grew to be nearly 3½ feet high. Another plant (II), grown under precisely the same circumstances, except that no potash was supplied, led a starving and sickly life, and attained a hight of scarcely 3 inches. Without potash no full development was possible. When this was added later (in II_2), the plant revived, pushed out with some vigor, but was unable to overtake its better-fed neighbors. Nor did the plants grow well in lack of either lime (IX), or chlorine (X), or nitrogen (XI)....These are the results, not of single, but of many repeated trials. Dr. Nobbe made in this case, a number of different series of experiments, each corresponding to the numbers I, II, etc. There were, for instance, several of series I, some larger, and others smaller. From these, I and Ia were selected as of average size and development. So II, III, etc., were each selected as fair average samples of the plants of those series. The selected plants were photographed, as shown in the picture.....Many such series of experiments have been carried on with various plants by Nobbe and numerous other investigators, and they all agree in this

One General Conclusion:

No agricultural plant can attain full growth without a sufficient supply through its roots from the soil of: *Potash, Lime, Magnesia, Iron, Phosphoric Acid, Sulphuric Acid*, and some compound of *Nitrogen*. Besides these, Chlorine, and perhaps Silica, are sometimes, if not always, indispensable to complete development. If any one of these *essential ingredients* be lacking, the plant will suffer in growth and development....To settle all these points, was not, however,

The Real Object of Dr. Nobbe's Experiments.

For this much was well-known before. He desired to go farther and learn what was the use, the *function*, of each essential ingredient in the plant, and the form in which it would best do its work. In this series he tested potassium, proposing to himself three questions. I give the first in his own words, translated from the German:

"*How will the plant comport itself in a solution containing all the ingredients essential to its growth except potash, and what will be the explanation of the peculiar phenomena that may be manifested?*"

Now for the answer. If we examine a green leaf with a microscope, we may find in it thousands of minute sacs, or *cells*, as they are called. Some of these contain a green substance called *chlorophyll*, (from two Greek words signifying green and leaf), which gives the leaf its green color. Inside these grains of chlorophyll appear still smaller grains of starch. Starch is composed of the elements carbon, oxygen, and hydrogen. It is produced inside the leaves, which have the power of taking carbon from the carbonic acid (a gas consisting of carbon and oxygen), in the air, and uniting it with hydrogen and oxygen of water to form starch and other similar compounds. This is done by aid of chlorophyll. After the starch is so formed, it is conveyed in the sap to the other parts of the plant, and either stored away, as in potatoes or grain, which consist largely of starch, or transformed into woody fiber or other materials of the body of the plant. And this formation of starch in the chlorophyll grains, and transportation, transformation, and storage to build up the plant, is going on continually as the plant grows. If, then, no starch is formed by the chlorophyll in the leaves, growth is impossible.

Potash Necessary for the Formation of Starch.

Now in every one of Dr. Nobbe's plants grown without potash, after the starch of the seeds was used up, no more appeared in the leaves. As Dr. Nobbe says at the conclusion of over a hundred pages of description of his experiments, without potash the plant "cannot assimilate (the materials needful for its growth), and shows no increase in weight, because, without the co-operation of potash in the chlorophyll grains, no starch is formed."

Dr. Nobbe's second question was: Of the different compounds of potassium, as sulphate, phosphate, nitrate, or chloride, which is best adapted for the buckwheat plant? In the solutions, the chloride proved the best; but there is good reason for believing that in ordinary soils where chlorides are present, the other compounds would be equally good, and, for many plants, much better. The third question was, in substance,

Can Any Other Element Take the Place of Potassium.

The elements sodium and lithium are chemically very closely allied to potassium, and it has been a question whether these could not perform the function of potassium; but in the experiments, sodium was totally inefficient, and lithium positively hurtful.

The Results of these Experiments to be Especially Remembered, are:

1st. No agricultural plant can grow without an abundant supply, in an available and appropriate form, of each of the essential ingredients of plant-food.

2d. Of these, potassium is necessary to the formation of starch in the chlorophyll grains of the leaf.

3d. No other ingredient can fulfill the office of potassium in the plant. The same is also known to be true of nitrogen, phosphoric acid, and each of the other essential ingredients. Each has its own work which no other can perform.

Practical Application of these Principles. The Chief Office of Fertilizers.

Crops can no better grow without a sufficient supply of *each* of these essential elements in the soil than could the plants in the solution. In removing crops from our land, we carry away great quantities of plant food. By continued cropping the available supply of one or more of the essential ingredients becomes too small for profitable production, unless by some means they are replaced. The ones most generally deficient are nitrogen, phosphoric acid, and potash. The chief use of manure is to supply these lacking materials. Stable manure is a complete fertilizer, as it furnishes all the ingredients of plant food, and improves the land besides. Superphosphates, bone-manure, guanos, potash, salts, and other like artificial fertilizers are valuable chiefly for their nitrogen, phosphoric acid, and potash. In their use we should first learn what materials the plant needs, and then select the fertilizers which furnish these in the largest quantity, best form, and at the lowest cost. The needs of a given soil can be best learned by experience and experiment. The only safe guarantee for the composition of commercial fertilizers is in chemical analysis.

Forest Tree Planting.

SECOND ARTICLE.

Last month in advocating the planting of forest trees, first, for the profit they would afford if used or sold as timber and fuel; and secondly, for the indirect profit in sheltering the dwelling, the barns, the orchards, and the crops, we omitted to state a third source of profit, the fruit or nuts. No doubt a forest of chestnuts, hickories, and in favorable localities the pecan, would pay in the crop of nuts a fine rental upon the land, while the value of the timber is annually increasing. In advocating the planting of forest trees, we are at once met by the question, "What shall I plant?" In this article, which in the crowded state of our columns must be brief, we give a list of the most desirable trees; we do not propose to enumerate all that may be planted to advantage, but those which will yield the most prompt direct and indirect returns. First, as to deciduous trees—those which drop their leaves in autumn, in distinction from evergreens. If one settles in a prairie country, he needs trees which will give him shelter and firewood in the quickest possible time, and these are soonest afforded by the

WILLOWS AND POPLARS.—One advantage of these is that they will grow readily from cuttings. However, the White Willow may have been over-praised, it is a most valuable tree; in the absence of this its yellow variety, the Golden Willow, may be used. The same may be said of the poplar, best known as Cottonwood; and the White Poplar, or Abele, objectionable in cultivated grounds on account of suckers, is also valuable. The willow affords a better fuel than the others, and straight poles, which may be used as fence rails. A belt of either will pay as a wind-break alone, and protect other forest trees as well as orchards. The Lombardy Poplar, often commended, is liable to be killed by borers by the time it gets large enough to be useful. No trees will give useful wood and good fuel so quickly as

THE MAPLES.—Unfortunately, two are called Soft Maple: *Acer rubrum*, and *A. dasycarpum*; to avoid confusion, the name soft should be dropped and the trees called Red and Silver Maples. While the last named is a most valuable tree for the planter, the other is of little use but for ornament. Those who as Soft Maple get the Red will be disappointed. The Silver Maple ripens its seed in June, and they must be sown *then*. It has grown in seven years from the seed, large enough to make three ten feet rails to the tree; its wood is useful for inside work, and the fuel is excellent. Next in value is the Ash-leaved Maple, or Box Elder (*Negundo aceroides*); it naturally spreads widely, but when

planted close grows straight; its sap affords sugar, and its wood is similar in value to the other. Both are valuable as first crop trees to be removed when slower ones come on. The Sugar Maple is of much slower growth, especially when young; it will do well on rocky hill-sides as well as on rich prairies. The value of its sugar is well known, and as a fuel it is inferior only to hickory.

HONEY LOCUST, or three-thorned Acacia, is a quick grower, and gives valuable timber and fuel.

THE ASH, both the White (*Fraxinus Americana*) and Black (*F. sambucifolia*), stands first, among the trees producing hard and valuable timber, for rapidity of growth. In ten or twelve years from the seed, these, when planted close, produce straight trunks of sufficient size (eight in. in diameter and 25 or 30 feet high), for any of the many uses for which ash timber is needed on the farm. A few acres in ash will pay better than most farm crops.

CHESTNUT is another quick growing tree, and some claim that it will give more wood in a given time than any other. It has the great merit of sending up shoots from the stump, after it is cut, and the plantation is thus continued. The wood is of little worth for fuel, but it is very durable, and much used for ornamental work. The nuts are always in demand at a good price.

EUROPEAN LARCH.—This is one of the most valuable of timber trees; it grows rapidly and produces wood that is practically indestructible. Sufficient on this for the present, was said last month. Among the slower growers, to be planted with the quick growing ones, and ready to occupy the space when those are removed, are:

BLACK WALNUT, with wood always in demand, though the fruit is of little value.

HICKORY, or Shell-bark stands first as a fuel and its wood is valuable, while its nuts always sell well. The Pignut hickory has harder wood, but the nuts worthless. Another hickory is the

PECAN-NUT, the wood of which is less valuable than that of the others, but the fruit brings a high price. It is best suited to southern localities.

OAKS should not be forgotten; all grow much better if protected by other trees when young. The White, Bur or Overcup, Post, and Yellow Chestnut oaks are the most desirable.

THE LOCUST.—Notwithstanding the ravages of the borers, this tree is too valuable to be given up. It will grow well on land too poor for other valuable trees, and when planted in groves many trees escape the attacks of insects.

AILANTHUS grows rapidly, makes useful timber, and good fuel. The odor at flowering time has created a prejudice against it; this lasts but a short time, and is of no consequence at a distance from the house. It is a very useful tree.

CATALPA, where the winters are not too severe, grows rapidly, and its wood is but little inferior to that of the locust in durability. This and the Ailanthus are raised with great ease, and their merits have been strangely overlooked. The same is true of the Southern Cypress and Osage Orange, which should be planted for timber in mild climates.

THE CYPRESS, or Deciduous Cypress (*Taxodium distichum*), is hardy at New York city; its timber is most durable, and young trees may be profitably grown for grape and other stakes, etc., while the wood for shingles and other uses is most valuable.

OSAGE ORANGE, grows with moderate rapidity, especially in the warmer parts of the country. Its wood is valued for wagon building, and for posts and railroad ties it is almost indestructible.

But little space is left for the enumeration of

EVERGREENS of value, for the usefulness of their timber, their cheerfulness in winter, and especially for the fact that as wind-breaks they are as effective in winter as in summer. They are less planted than they would be were there not a general idea that they are difficult to manage. We shall show, in a future article, how they may be handled without loss. For general utility we place first the

WHITE PINE (*Pinus Strobus*), a native which is always beautiful, grows with fair rapidity, and its wood is more generally useful than that of any other tree; the supply is annually diminishing, while the price is increasing. The next most desirable species of pine for the planter is the

SCOTCH PINE (*Pinus sylvestris*).—This makes itself quite at home in this country, and adapts itself to a great variety of soil. Its wood is about as valuable as that of the white pine.

NORWAY SPRUCE (*Abies excelsa*), is the most generally planted evergreen in this country. It is one of the best for screens, as it is hardy and suited to nearly all situations; its wood in Europe occupies the same place that white pine does in this country.

ARBOR-VITÆ (*Thuya occidentalis*), is a native species, also valued for screens; it is more dense than the Norway spruce, and is of rather slower growth. The wood, incorrectly called white cedar, is durable.

RED CEDAR was at one time highly praised as a desirable evergreen, but its popularity has waned, and it is at present justly regarded as inferior to those we have named. The catalogues offer a long list of evergreens, but we have included here only those that are generally hardy and useful. How to get the trees, by raising from seed or buying, and manner of planting will be given in other articles.

The Rocky Mountain Sheep.

(*See First Page.*)

The Engraving of the Rocky Mountain Sheep given upon the first page of this number, is from a sketch taken from life by Mr. Wm. F. Cary, while on an expedition in the "far west." This animal was first described (1807) as the Siberian Argali, (*Ovis Argali*); later naturalists regard it as distinct, and call it *Ovis montana;* it is a true sheep, and not to be confounded with the so-called Rocky Mountain goat, which is probably a species of antelope. It is found in the mountain ranges from the Rio Grande northward to California, Oregon, and Washington Territory, extending westward to the coast range, and the "bad lands" of Nebraska appear to be their eastern limit. The animal has a large body, a full grown one weighing 350 lbs.; it is clothed with a coarse hair in summer, much like that of the deer, which in winter is intermixed with a fine soft wool. The general color is a grayish-brown, which is darker in some portions, and lighter in others, especially around the head; the legs have a line of white on their rear edges, and the belly and a patch on the rump are white; the tail is very short; the hoofs, in shape much like those of the antelopes, are black. The striking peculiarity of the animal is its horns, which are of enormous size, and have given it the name of "Big Horn," by which it is known to the mountain men. The bases of the horns nearly touch; they rise from the root for a short distance, curving gently backwards, and at the same time circling outward; thus they describe rather more than half a circle, the apex being turned outwards; the horns seem out of proportion to the size of the head; in section they are somewhat triangular. In an old animal they have measured 18 inches around the base, and 36 inches long, following the curve; the tips 19 inches apart; their weight, with the attached skull, 18½ lbs.; the horns are of the same color as those of the common sheep, and marked with transverse wrinkles. The female has much smaller horns, only 6 or 7 inches long. Mr. Cary states that he has seen them in flocks of 30 or 40, grazing near herds of buffalo and antelope; besides grass, they feed upon the bark of trees. When alarmed they at once take to the mountains, and they are so very shy that one may be in the locality where they abound, and see frequent "sign" without ever getting a sight of the animal. To get a shot at this game the hunter must get above it, as practiced by the chamois hunters of Europe. The flesh of the mountain sheep is much like that of mutton, but it is less fat, and has a "gamey" flavor relished by many. The meat, like that of the buffalo, is sometimes offered in the New York markets, and is served at the restaurants as a rarity. It would be interesting to see the result of crossing this wild species with some of the breeds of domestic sheep.

Ogden Farm Papers.—No. 73.

BY GEORGE E. WARING, JR.,

[Col. Waring furnished us with a paper of the usual length, but such is the crowded state of our columns, that we have been obliged to condense wherever it was possible, and as a part of his article will be quite as seasonable another month, we reluctantly leave out a portion of it.—ED.]

A correspondent in Illinois asks: "What amount of milk can be depended on from a three-year-old Jersey for ten months, after coming in?"—*A.* Average per day six quarts, with the advantage over other breeds that it would be less during the early part of the milking, and much more during the last month.

"How much butter will they ordinarily make under fair treatment?"—*A.* From 200 to 225 pounds per annum.... "Will high grades, which are much cheaper than thorough-breds, be equally profitable?"—*A.* If of good quality there will not be much difference so far as their butter products are concerned, but the difference in the value of their progeny would soon made up for the difference in their original cost.... "Will not grades be found hardier, better feeders, and give more milk of nearly, or quite as good quality?"—*A.* The Jersey is perfectly hardy in all sections of our country, as much so as any cow we have, and when dried off will fatten as readily as any other animal having the same tendency to the secretion of fat with the milk. I should say, that, as a rule, in proportion as the quantity of milk is increased, will its quality be reduced, and that with a considerable infusion of good blood, any falling off in quantity will be accompanied by an improvement in quality. He says: "I have supposed the objection to Jerseys to be the small amount of milk given so that families desiring to use milk freely could not be supplied by one cow, even when the milk is not used for butter. Is this correct?"—*A.* In one sense the Jerseys are small milkers. Very often they fall below twelve quarts per day at their very best, and often toward the end of their milking they give but three, or four, or five quarts per day, but it is to be remembered that they give this reduced amount during weeks and months, when other cows would be entirely dry. The common cow is not well adapted for the use suggested, because, while she will for a month or two flood the pantry, beyond the requirements of the family, she will leave them to buy milk, often during nearly one half of the year, while the Jersey may be depended upon during, at least, nine months for a very satisfactory supply, and during six weeks, or two months more, for a smaller quantity, which has by this time become almost as rich as cream. Where a large quantity of milk is needed for family use, the year round, it is advisable to keep two little Jerseys, consuming together no more than one shorthorn cow—one coming in in the spring and one in the fall, and so keeping up a regular supply of the best milk, and the richest cream throughout the whole year, and (mixing the milk of the two) pretty nearly uniform in quantity month after month.

The following comes from Massachusetts: "How many acres of land will it take to soil six cows and three steers, which are intended for fall fattening? Our soil produces corn, clover, and roots very freely and cheaply, better in fact than it does pasture grasses. To feed this number of cattle, what crop should I put in, in what succession, and what the acreage of each? Would it be on the whole cheaper to soil than to pasture? Unimproved land costs from $25 to $50, or more per acre."

The amount of land required for this duty will, of course, depend very much on its quality, the amount of manure used, and the thoroughness of the cultivation. I should expect to accomplish the result satisfactorily on my own land with four acres, which I should divide into plots of one-fourth of an acre each; sowing oats on one plot as early as possible in the spring, and on a second one ten days later, and on a third ten days later than that. On a fourth I should try spring wheat. Then, beginning as early in May as the experience of the neigh-

borhood showed to be safe, I should drill corn for fodder (at the rate of four bushels to the acre), on one of the quarter-acre plots, following in like manner with the remaining plots in succession at intervals of from four days to one week, according to the weather. Sometime after the last of these plots is planted, the four that were in oats and wheat will be ready to be taken up in their turn; and they should have a second manuring before being planted to corn. This course would probably produce more fodder than would be required to keep the nine head of stock in best condition up to frost, and the surplus being cut and cured, and stacked in the field, would, with the addition of a little meal, probably carry them on in good condition well toward the first of December.

Whether this process would be cheaper and better than pasturing on land at the price named, must depend entirely on the natural character of the pasture, their nearness to the barn, etc., etc. Under ordinary circumstances, I think it would be cheaper, and I am satisfied that it would be better, in a majority of cases.

Such a method of keeping cattle gives one that control over the manure produced that must inevitably lead to an improvement of the land, and the system recommended, it should be understood, is only for the first year. If the process is to be repeated in subsequent years, then the first two plots sowed to oats should be sowed to winter rye early in September (earlier than if for a grain crop). Rye sown this early may grow too large before the heavy frosts check it, and in such case may, with advantage, be pastured off pretty severely (by tethering), when the ground is sufficiently dry.

A correspondent in Maryland asks: "Are Mangolds, Ruta-bagas, or Sugar Beets best for me to plant? I intend to use them for milch cows, breeding ewes, sows with pig, and young growing pigs. I think I have seen in the *American Agriculturist* that any of these roots could be transplanted. Now, if this is so, could I grow my plants in beds, and plant them afterwards, just as I would sweet potato, or cabbage plants? Hitherto my great trouble with these crops has been in thinning them out. Which are the best varieties?"—My experience and observation indicate that the best beet is that known as Lane's Improved Sugar Beet, which approaches the size of the Mangold, but has much more saccharine matter, though not equal in this respect to the smaller Sugar Beet proper. The Ruta-baga is also a capital root, but both require very high manuring, and clean cultivation. Both may be transplanted without difficulty; the ruta-baga in this regard differ in no material respect from the cabbage, and may be transplanted at about the same size; but I have had the best success with the beet family in transplanting them when most of the roots were from one-half to three-fourths of an inch in diameter. They should be topped at about the foot of the spreading part of the leaf, and the tap root should be cut off, so as not to fold up when inserted in the dibble-hole. When transplanted at this size, and with this precaution against too rapid leaf action, the bulb itself contains sufficient moisture to support the plant until it is established and formed new leaves. I have found the cultivation of these plants in seed-beds quite easy and inexpensive (the bed being in clean land), and the transplanting less laborious than thinning.

Bee Notes for March.

BY L. C. ROOT, MOHAWK, N. Y.

The results of the past few years teach us the necessity of proper management during this and the following two months. It is a common remark of those who have lost heavily of late, that they can winter their bees well enough, but their trouble is to get them through the spring months. Nearly all the old bees that are in the hives at the time they are taken from their winter quarters—even when this is done at a suitable time, will, under the most favorable circumstances, die within six weeks or two months; hence the necessity of controlling brood-rearing, so that it shall be attended with the least possible outlay and loss. Every intelligent bee-keeper aims to have his bees strong as early in the season as possible, and his anxiety to secure this result is often the direct cause of the reverse. On the first fair days of this month, he takes his bees from their winter quarters, and places them on their summer stands, and, following the advice of most writers of the past, he examines each to ascertain its exact condition. All this induces breeding, and if a few warm days follow, it will be found that the queen has deposited a large number of eggs. There is a limit to the bees' capacity for labor, and if, under these unfavorable circumstances, they are busy with extensive brood-rearing, they will naturally die off much sooner than if they remained quiet until a later period, when brood-raising can be conducted with less labor. The loss of a bushel of bees from one hundred swarms in the cellar, where all may be seen, seems enormous, while twice that quantity may be lost from their summer stands, though from being widely scattered on the ground, the loss is seldom realized. I am aware that in advising against a practice so long and generally advocated, I shall fail to induce many to adopt my views. One writer claims that upon the operations of the present month will depend the result of the season. That this month's operations are all important I am fully aware. What the condition of the swarms is to-day should have been decided last October. The principal effort of this month should be to carry the bees over the occasional warm days as quietly as possible. The time to place bees on their summer stands will vary according to the latitude. The blossoming of the soft maple will best indicate the proper time; or they may be taken out a little before this.

How many Swarms in one Locality?

I am asked what number of swarms I would advise keeping in one place during the working season. This will depend much on the amount of forage. There are locations where a large number could not be kept, while a few swarms would thrive and give a fair yield. In almost any locality there may be times when a certain kind of blossoms would materially aid a few swarms, while a large number would receive but little benefit. Yet for this gain, it would not be advisable to divide an apiary—placing the parts in two locations. If, during the general yield, forage is abundant, I should be slow to advise a division, even if there should be one hundred swarms.

Answers to Questions.

As to the best month to commence keeping bees?—beginners should not purchase stocks until May, as great care and experience are necessary to carry them through from the end of winter to that time....In answer to questions regarding the general condition of bees throughout the country, I would say that I have recently visited several beekeepers of this state, who keep from one to seven hundred hives each, and it is gratifying to find them in such apparently fine condition.

Bee-keeping at the Centennial Exhibition.

I desire to call the attention of bee-keepers to the opportunities presented by the Centennial Commission for the exhibition of bees, honey, and aparian implements generally, at the Centennial Exhibition. They offer to put up a special building for the purpose, and there seems to be good reason to believe that every necessary facility will be given. I understand that the Bee-keepers National Convention will meet in Philadelphia, which will afford bee-men a fine opportunity. I will endeavor to give the necessary details in due time.

"A New Method of Growing Plants."

BY PETER HENDERSON.

A new genius has appeared; he lives "out west," and he sends me a circular headed as above. He claims that by his "new method," "tomatoes ripen from four to six weeks, and cabbages from two to four weeks earlier than under any other mode known to gardeners." He also states that his thirty years' experience as a practical gardener, has developed this "new process" of growing plants, and he wishes it to be "distinctly understood" that it is not "patented," therefore he "shall be very careful to whom he imparts his secret!"—Like this western man, I too have been a digger and delver in the earth, for upwards of thirty years, and in that time have learned that whenever any one laid claim to any "secret" pertaining to the art—particularly if he offered to sell it as a secret, that he was either an ignorant pretender, or something worse. I need not say to your practical readers, that the only way that this would-be benefactor to the cabbage growing community, gets a crop any earlier than his neighbors in the same latitude, and on the same soil, can be by forwarding the plants by artificial means in hot-beds or greenhouses. If he likes to go to that expense, there is nothing to hinder his so doing, and for that matter, he might have doubled the time of "earliness" of such culture, compared with culture without these means, and still told the truth. But when he wants to make us believe that the knowledge of such means of forwarding is a "secret," as yet in his exclusive possession, and asks us to buy it, I for one do not wish to become the purchaser of such a doubtful pig, enveloped in such a doubtful bag. It can not be too often or too earnestly impressed upon your inexperienced readers, that the laws that govern plant growth, are just as certain and unerring as the law of gravitation. Every plant *according to its nature*, requires a certain time, under a given temperature, to mature. For example, if tomato seed is sown in the *open ground* in May, in the latitude of New York, the crop will ordinarily ripen during September. The same seed sown in the open ground in February, in Florida, would be likely to produce its crop of ripe fruit in June—or in both cases, without artificial means, in about five months, and in these five months named, it would be found that the *average* temperature at these dates, from May to September in New York, and from February to June in Florida, would be nearly the same. Now when, with our artificial appliances of hot-beds and hot-houses, we can govern the temperature at will, it can easily be understood, that when the same conditions of temperature that we have in early summer outside, can be obtained under glass, a plant of tomato, cabbage, or anything else, thus "forwarded," so as to be set out at the season it will grow outside, will mature just so much earlier.

I wrote to the discoverer of "the new method," asking how much would be the cost of imparting the "secret," and find that his terms are very reasonable; for the County of Hudson, N. J., (where I, together with some hundred or more other market gardeners are located), he only asks $300 for the season, but "cash down," is an imperative condition; no after-claps can be considered for a moment. Now when it is claimed that the "new method" will mature tomatoes four weeks, and cabbages six weeks sooner than the old method, and that the quantities of these products are enormous in our county, amounting already to millions, and that their maturing so much sooner, would fully quadruple their value, it will be seen that for only $300 "cash down," the millenium of the cabbage grower can be brought about in this Centennial year.

But no doubt in this, as in all other good things, some carping, cavilling, doubting fellow, will be ready with impertinent insinuations; he will be asking why this western man is so ready to sell his birth-right, or brain-right, for such a miserable mess of pottage as $300 "cash down." All he has to do is to pull up stakes, and come and plant his tomatoes and cabbages in Hudson Co., N. J., and realize in one season a hundred times $300, "cash down." The columns of the *American Agriculturist* have already saved hundreds of thousands of dollars to its readers, by preventing them from falling into the hands of such men as the discoverer of the "new method" evidently is, but if any of them should feel like trying his "secret," let the bargain be on the "no cure no pay" plan—that is, let a contract be made that the "new method" will *first* be shown to the would-be purchaser to produce tomatoes or any thing else, four weeks sooner than the "old method," but on no account should they pay $300 or any other sum "cash down."

A House Costing $2,000 to $2,300.

BY S. B. REED, ARCHITECT, CORONA, LONG ISLAND, N. Y.

This plan, embodying the principal characteristics of a design I made seven years ago, for the residence of Mr. Arthur Waller, Newtown, L. I., has a homelike, tasteful, and picturesque appearance—particularly now, with its neatly laid-out grounds and grown up shrubbery, which especially befit its *pointed style*, and demonstrate the harmony that exists between these simple *cottage* outlines, and rural surroundings. It is thus adapted to either a suburban, or more retired country situation....**Elevation,** (fig. 1.)—A noticeable peculiarity is the earth finish around the foundation, which is simply utilizing the earth from the cellar. This is banked against the foundation, up to within six inches of the wood, evenly graded at 45 degrees angle, and neatly covered with closely laid turf. This conceals a roughly constructed foundation; it insures more dryness of the cellar, and consequently of the whole house; it guards the cellar against extreme heat in summer, and frost in winter; and it gives such a visible breadth of bottom, as to add to its apparent strength. This earth finish around the foundation is especially adapted to wet or clayey soils, where it is desirable to have the cellar mostly above ground; at the same time it secures greater altitude to the whole building....There are marked features of dissimilarity in the several openings, and in the details of the exterior dressing—each part being adapted to its special purpose, and so

arranged as to be in keeping with the general design. It therefore unites harmony and beauty.... **Cellar,** (fig. 2.)—The Cellar extends under the whole house, clear hight 6½ feet. The outside entrance to the cellar is by an area-way, having stone

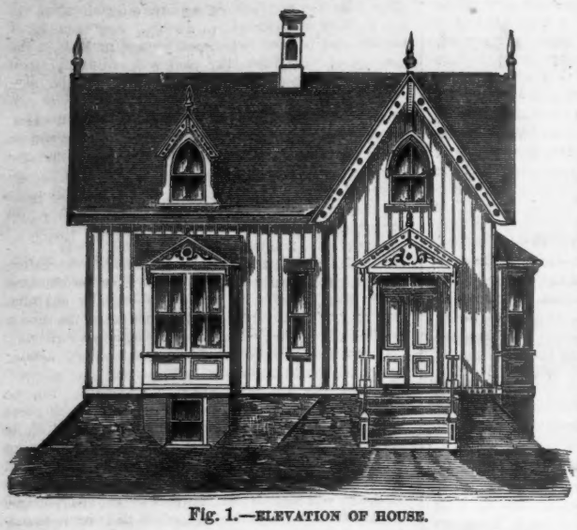


Fig. 1.—ELEVATION OF HOUSE.

steps and walls, with hatchway and inside doors; the hatchway doors, when closed, being even with the sloping earth finish.... **First Story,** (fig. 3.)—Hight of ceiling 9½ feet. The irregular outlines of this plan contribute to the cheerfulness of the dif-

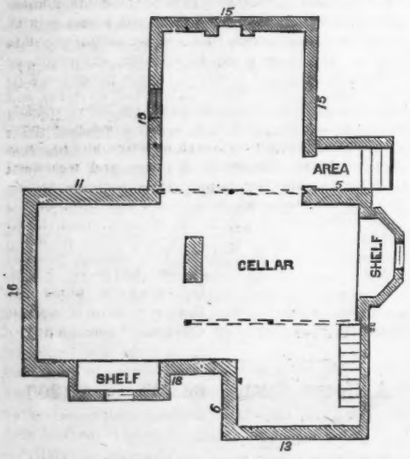


Fig. 2.—PLAN OF CELLAR.

ferent apartments, by giving opportunity for the insertion of windows where they will command the most pleasing prospects. The principal entrance is from the porch through double doors to the spacious hall, which adjoins the parlor and dining-room. The *Parlor* has one bay and two plain windows, with large wall space for furniture and wall decoration. The *Dining-room* is conveniently arranged to connect with the principal hall, parlor, rear lobby, large pantry, or closet, and the cellar stairway; and has a large bay and one plain window. [It would be far preferable to have the cellar stairway start from the kitchen, to avoid going through the dining-living room to reach it from the kitchen.—ED.] The *Kitchen* is planned to have a Range, Sink, Pump, Wash-tubs, and the usual pipes for cold and hot water, and is provided with two windows, situated in opposite sides of the room, to give abundant light, and afford thorough ventilation; a closet adjoining the chimney breast; and a cupboard is beneath the sink. The Pantry is of good dimensions, contiguous to both dining-room and kitchen, has a suitable window, and is furnished with shelving. The rear entrance is from the covered stoop, to the rear lobby, and from thence to either dining-room or kitchen..... **Second Story,** (fig. 4.)—This story is reached by a winding stairway from the principal hall, and contains 4 good-sized chambers, a bath-room, 5 large closets, and the needed passage-ways. The breast-walls are vertical to the hight of 3½ feet, and are continued upward along the underside of the steep roof framework to the ceiling, which is 8 feet high. The Bath-room is provided with a bath-tub and seat-closet. The Tank is 1 foot 8 in. wide, 2 feet long, and 3 feet deep, and is placed in the closet adjoining the bath-room, at a hight of 2 feet above the floor, and provided with a neat fitting lid. The spaces above and below the tank may be used as a closet for toweling, etc. The *interior location* of this tank should insure it against frost, so long as the house is occupied by the family.... **Construction.**—The excavations for the cellar are 2 feet deep, and the earth is used as above described. The materials for the principal foundations may be of the roughest stone, such as are commonly used in farm fencing—and coarse mortar. Very little skill is required in the construction of these walls, as only the last or top course is seen from the outside, which should be laid to a line, and levelled to receive the frame work. The exposed portions of the bay-window foundations are constructed of brick laid in mortar, resting on stone-work, and leaving an interior recess or shelf, as shown on the cellar plan. The cellar windows are of good dimensions, and situated where they will insure sufficient light, and provide for the complete airing of the cellar. An opening should be left in one, or both of the chimneys, near the cellar ceiling, having a continuous flue to the top, which will be heated by contact with the fire-places above when in use, and produce a draft that will exhaust the poisonous vapors always generated in cellars, and prevent them from rising through the house to contaminate the air of the living-rooms. This cellar may be easily and cheaply divided into separate apartments by rough planking or otherwise if ever desirable. The rear portion might be readily converted into a laundry, where the wash-tubs, with their accompanying pipes, might be placed, leaving more kitchen room, and relieving it of the steam, and general disturbance of the ever recurring washing days. Large durable posts are placed in the cellar, resting on large flat stones that have been embedded in the cellar bottom, as supports for the 4x8-inch girders, shown on the cellar plan by the dotted lines. By the estimate it will be seen that very little timber is used in the framework, of which the sills and beams comprise the heavier parts. I would enforce the importance of having the frame

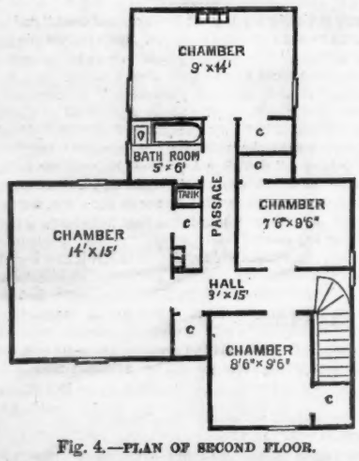


Fig. 4.—PLAN OF SECOND FLOOR.

fitted, and secured together in a substantial manner. The beams should be bridged as described in the Sept. *American Agriculturist*, 1875.... The exterior sides of the frame-work are designed to be inclosed with double boarding, with an intermediate lining of tarred felting. The first covering should be milled to even thicknesses, and put on horizontally, and double nailed to each stud. The felting is next applied in whole width strips, running from the sill to the plate. The water-table, and window frames are next put in their places, after which the final covering of tongued and grooved sheathing is put on vertically, with the lower ends neatly fitted to the water-table, and the upper ends covered with a 10-inch board forming a frieze to the cornice. The siding should then be painted one coat in a thorough manner, when battens of 1½ inch "half round" (previously painted both sides) are firmly nailed over the joints of the sheathing, after which all nail holes should be stopped with putty preparatory to the final painting. The windows are all arranged for 1½ inch sash, hung to iron weights with good cord, and neatly cased and molded on the inside; outside blinds are intended for each window above the cellar. The cornices are constructed in the simplest manner, and the perforated barges, and finials, are made as indicated by the elevation, and placed near the extremity of the gable cornices, from which ever varying shadows are made against the building, producing the most delicate and pleasing effects. It is purposely in-

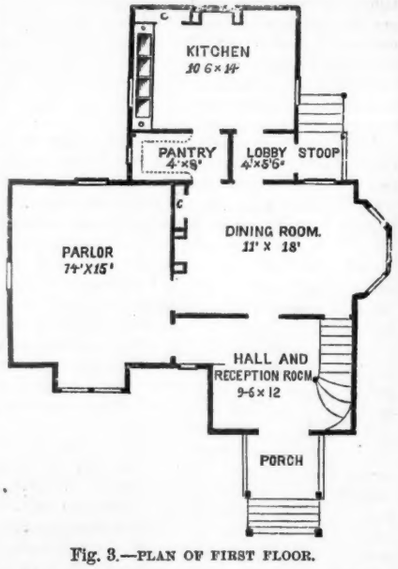


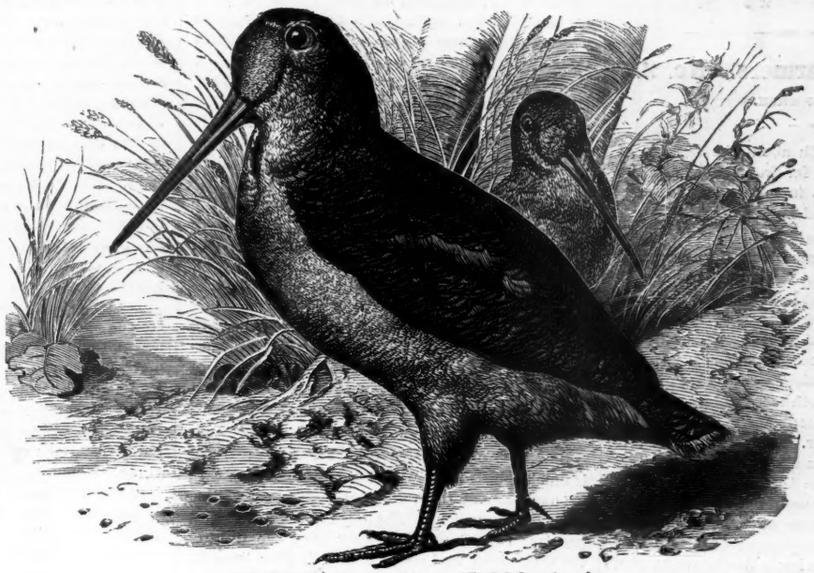
Fig. 3.—PLAN OF FIRST FLOOR.

tended that the roofs of the principal building, porch, stoop, bay, and dormer windows, shall have sufficient pitch for shingling, so that no tin work is required except for the valley, and gutter strips; these may be prepared at the shops of any tinsmith, and laid by those employed on the building. ....The character of the balance of the work may be inferred from the estimate which is given in detail. **Estimate:**

61 yards Excavation, @ 25c. per yard	$ 15.25
1,278 feet Stone Foundation, complete, @ 12c. ₱ foot	153.36
5,000 Brick for bays and chimneys, (furnished and laid,) @ $12 ₱ 1000	60.00
30 feet Stone Steps, and Coping, @ 30 c. per ft	9.00
660 yards 3-coat Plastering, complete, @ 35c. per yard	231.00
3,526 feet Timber, @ 2c. per foot	70.52
viz. 1 Sill, 4x8 in. x 151 ft. long. 13 Beams, 3x8 in. x 22 ft. l'g.	
10 Posts, 4x6 in. x 13 ft. long. 19 Beams, 3x8 in. x 16 ft. l'g.	
1 Plate, 4x6 in. x 135 ft. long. 15 Beams, 3x8 in. x 15 ft. l'g.	
4 Valleys, 3x7 in. x 17 ft. long. 1 Beam, 3x7 in. x 80 ft. l'g.	
1 Girder, 4x8 in. x 16 ft. long. 50 Rafters, 3x4 in. x 13 ft. l'g.	
300 Wall Strips, 2x4x13, @ 13c. each	39.00
200 Sheathing, 9 inches, at 18c. each	36.00
100 lbs. Tarred Nelting, @ 5c. ₱ lb	5.00
200 tongued and grooved Sheathing, @ 28c. each	56.00
200 Battens, @ 6c. each	12.00
Materials in Cornices and Water-table	38.00
325 Shingling lath, 1¼x2x13, @ 6c. each	19.50
60 bunches Shingles @ $2 ₱ bunch	120.00
177 Flooring, 1¼x9½ in. @ 25c. each	44.25
2 Stoops, (front and rear) complete	90.00
2 Bay Windows, (with blinds) complete	135.00
10 Plain Windows, (with blinds) complete, @ $12 each	120.00
4 Dorme Windows, (with blinds), complete, @ $20 ea.	80.00
8 Cellar Windows, complete, @ $6	48.00
Stairs, complete	75.00
24 Doors, complete, @ $10 each	240.00
3 Mantels, complete, $20, $10, and $6	36.00
Shelving, etc., $12; Nails, $18; Painting, $110	140.00
Plumbing and Range, complete	222.70
Cartage, average 1 mile	25.00
Carpenter's labor not included above	175.00
For contingencies	44 42
Total cost, complete	$2,300.00

Woodcock and Snipe.

Strange as it may seem to sportsmen, many people who have lived all their lives in the country, do not know the difference between a Woodcock and a Snipe. In the view of many, all birds having a very long bill, are Snipe. Should these persons visit a city market, they would learn at least one difference, for they would find that the price of a dozen Snipe would only buy a single pair of Woodcock. The two birds are closely related in their structure, and there is not nearly so much difference between them in the eye of the naturalist, as in that of the sportsman, who hunts, and of the epicure who eats, them. Both birds belong to the Snipe family, or *Scolopacidæ*, so called from *Scolopax*, the European Woodcock, which was the ancient Greek and Latin name of that bird. This family includes not only our Woodcock and Snipe, but several other birds that are of interest to the sportsman. We find here the Sand-pipers, the Godwits, the Curlews, and several birds incorrectly called Plovers, and those known by the popular name of "Teeters." These birds, generally of medium or small size, have, without going into ornithological characters, one point in common; they obtain their feed by feeling for it in the sand or mud, and to accomplish this, they are provided with a very slender and long bill, which is remarkable not only for its length, but for being peculiarly sensitive, which allows them to select their food, while it is hidden from sight, by a delicate sense of touch. The bill is in some genera straight, and in others curved upwards or downward. Another quality, which the family have in common, is a peculiar excellence of flesh, which makes them highly prized as delicate food. They are all migratory, and the majority, when not breeding, are to be found in large flocks; all breed in northern localities; commonly lay four parti-colored eggs, and the young are able to run about as soon as hatched. Leaving the other birds of this family, we will confine ourselves to two, the Woodcock, and the American or Wilson's Snipe; of these we have had accurate engravings prepared, which will allow those who do not care for technical descriptions, to distinguish these two valuable and very closely related birds.



THE AMERICAN WOODCOCK.—(*Philohela minor.*)

THE AMERICAN WOODCOCK has been by some naturalists placed in the same genus with the European Woodcock, but it is much smaller, and differs sufficiently in the size and shape of the first three quills of the wing, to place it in a different genus, and ornithologists call our bird *Philohela minor*. It is of course distinguished by peculiarities of plumage, length of toes, and other characters, but the popular feature in the bird, and one which allows it to be distinguished from all others, is the eye, which is very large for the size of the bird, and is set away back and in the upper corner of the head, in such a manner as to appear as a deformity. No doubt, when the bird has its bill thrust deep into the soft soil, in search of food, the eye is then found to be in the most convenient position possible. The Woodcock is most abundant in the eastern states; it extends from Nova Scotia to Kansas and Nebraska, where it is found sparingly. There is, perhaps, no common bird, the habits of which are so little known as those of the Woodcock, as it is at once the most shy and the most fearless of creatures. The birds appear in the northern states early in March, usually about the 10th; they breed in New York and New England, their nest being scarcely more than a heap of leaves; the eggs, usually four, are of a drab color, tinged with white, and spotted with brown and lilac; both birds aid in incubation; so fearless are they at this time, that one writer says he has known an ox-cart to be driven within a foot of the nest without starting the female; and a friend who is an active sportsman, and knows all the ways of birds, informs us that he has in a procumbent position, approached so near the nest, that had his hat fallen off it would have struck the sitting bird; yet the mother bird only gazed at the stranger with those remarkable eyes of hers, without a sign of fear. It has fallen to the lot of very few to have seen the Woodcock's nest, and there is but little known about the ways of the young birds. In summer, the flight of the Woodcock is very short, and it often alights within a few feet from the place where it started; but in autumn it takes a longer flight, rises with a peculiar shrill twitter, and frequently goes to a long distance. It is a great puzzle to sportsmen to account for its almost total disappearance during the moulting season in August; at this time the birds leave their former haunts, and do not re-appear until Oct. In most states the birds are protected by game-laws, from January 1st until July 4th.

THE AMERICAN SNIPE.—(*Gallinago Wilsoni.*)

THE AMERICAN SNIPE is readily distinguished from the Woodcock by its different shape; its body is more slender, it has longer legs, and a very different look throughout; one of the points relied upon by ornithologists is, that the *tibia* (drumstick) is, in the Woodcock, feathered down to the very joint; in the Snipe the *tibia* is naked in its lower portion, and covered with scales like those on the *tarsus*, or what in a fowl is popularly known as the leg. This bird is sometimes called the English Snipe, as the early settlers gave to the birds, plants, and trees, which resembled those they had left at home, the names they were familiar with. This bird is quite unlike the Snipe of England, as was shown by Wilson, on which account it is often called Wilson's Snipe, as its systematic name, given by Lucien Buonaparte, is *Gallinago Wilsoni*. It is found throughout North America, and extends through Mexico to South America, and westward to Montana and Wyoming. It sometimes breeds in northern New England, though preferring a higher latitude. It arrives in the neighborhood of New York early in March, after a while it moves further north to its nesting grounds, along our northern border and in Canada. It forms a nest of loose grass and leaves on the ground, in bogs and thickets, in which are laid three or four olive-drab eggs, thickly marked with brown spots, especially towards the large end. The Snipe begins to return from the north in September, and not having the cares of a family, takes its ease among the rushes and tussocks of the swamps, and becomes fat and lazy. It sometimes lies so close that it may be approached to within a few feet, when it suddenly starts with its well known "*scaipe*," which frequently disturbs the equanimity of even old sportsmen. The Snipe, like the Woodcock, bores into the soft ooze in boggy and wet spots for worms and such other creatures as may be found in these places; besides this, it devours numerous insects that it finds in the wet grass, and even eats leeches from the ponds. The Snipe is, in one respect, very puzzling to the sportsman, as the birds may be found in great abundance in a given locality one day, and the next day he may hunt over the same

ground, no matter how thoroughly, without getting up a single bird. Some ascribe this peculiarity to some meteorological influence; whatever may be the cause, we know several experienced shooters, who can give abundant instances of the sudden disappearance of Snipe in places where they were to be found in great numbers the day before.

Among the Farmers.—No. 2.

BY ONE OF THEM.

I was writing last month about the farmers of the Channel Islands, and far from exhausted the subject. If their success in raising any one crop is beyond dispute, I should say that crop is

Early Potatoes.

They not only raise potatoes as a first crop, and of course have them fit for market as early as possible, but their stock of seed potatoes is raised as a second crop—often upon the same land. This second crop is not a large one, but as it is dug on the approach of cold, or rather cool, weather, it keeps in good order for early planting. They were digging this crop, consisting of both early and late sorts of potatoes, when I was on the Island of Guernsey, after the middle of October. In some cases it had followed early potatoes, in others some other early crop. It is a severe tax on the land, thus to yield two crops without high manuring and real garden culture, which these hardly have. Yet the first crop is a bountiful one, varying with the season of course, and seldom showing a tendency to rot. The secret of their success, if secret it be, is, I think, in the use of sea-weed, and the ashes of sea-weed as manure. These are applied alone, or in composts with other manures, in close proximity to the plants, and upon light land, at least.

Sea-weed.

The richness of the sea-weed in alkalies, as well as in nitrogen, and the presence of a considerable proportion of salt and of lime, make it peculiarly adapted for a potato fertilizer. It would seem a shame to burn so valuable a manure, were it not for the fact of its great abundance. Were there less of it, no doubt the farmers would be glad to pay a higher price for it than its worth for fuel; as it is, it affords an inferior but valuable fuel for poor people, and there is a prompt sale for the ashes.

Collecting the Sea-weed.

There are two principal kinds, as with us, the "eel-grass" and "rock-weed," the latter being by far the richest. That which is torn off by waves and storms, and washes ashore or floats about, is common property, and is gathered constantly as the tides recede, and dried in the sun upon the sands above the reach of waves, being spread out quite thin, and when dry, raked together and stacked up. At certain seasons, however, for a few days at a time, people are permitted to tear it from the rocks. This makes lively times along the shore, when the weather is favorable, and the "Vraic gathering" is looked forward to as a sort of farmer's festival or holiday, and valued as such, it would seem, almost as much as for the sake of this "harvest of the sea."

Sea-weed Used on Other Crops.

The alkali of the sea-weed, in connection with its other constituents, is peculiarly conducive to the growth of the root crops proper. Parsnips and carrots are extensively raised, and sea-weed usually forms an important portion of the manure used for them. I think our sea-shore farmers may profit by these hints, and by using sea-weed composts for potatoes and roots, secure comparative freedom from damage by wire-worms and other insect depredators, and also furnish to the crops pabulum well suited to their wants.

Ponies.

Perhaps it is the excellence of the roads, as much as anything, which makes ponies so common among the farmers of the Channel Islands. Their use is, however, not by any means peculiar to these islands, but throughout Great Britain ponies are much more extensively used than with us. The time may come when we shall have breeds of ponies peculiar to isolated districts of our own country. The Kanuck indicates a tendency in that direction, and the ponies of Mexico and the plains show that, left to a natural or semi-natural life, breeds of ponies will be formed, which may be of great value when the types become fixed, and we make a definite place for them in our agricultural or social life. In Great Britain there are the Shetlands, the North Country ponies, which closely resemble them, the Welch, the New Forest or Hants ponies, which are larger and more like little horses, as well as other kinds, and these Islanders are situated conveniently for the importation of one of the toughest, strongest, and most servicable breeds of ponies which exist, those of Hants (Hampshire).

The farmers use their heavy Brittany teams for farm work, while they have their ponies for the road and for light jobs. They have the merit of being safe, quick, good tempered, lasting, hardy, intelligent, not expensive to keep, and easily controled. They are used in light two-wheeled vehicles, convertible at once from a pleasure gig into a cart capable of carrying to market twelve to fourteen sacks of grain, or a couple of sides of beef, or a sow and pigs. These pony carts somewhat resemble a New York butcher's spring cart, but are lighter, smaller, and trimmer.

The Use of Two-wheel Vehicles

is much more common on these Islands than with us, and many of them are of unique construction, and very convenient. The hay cart, for instance, has two curved pieces starting from the front of the frame, and first rising a little higher than the back of the horse, then curving forwards and running out over the horse so far that the ends have to be braced to the shafts beneath them. They are of course connected by slats, ladder-fashion, and when the load is on, only the head of the horse projects in front. They haul as much hay with one horse as we do with two, and perhaps more in weight, as the bulk seems to be the same, and their hay is rarely or never so dry as ours, nor so coarse, but usually fine, green, and heavy. I noticed a peculiarity in attaching the horse to most of these carts or other two-wheeled affairs, both on the Islands and in England. The shafts are very much bent, and are fastened to the saddle as high up as possible—often level with the withers of the horse; besides the vehicles are invariably loaded so that they will not bear *down* upon the horse at all, but almost constantly bear up on the belly-band. Our philosophy in the matter is that a moderate weight upon the back gives the animal a better hold upon the ground—their's, that being relieved of all weight upon the back, and having only to pull the load, the horse is less easily fatigued, and I must say I think the weight of argument is with their reasoning. Yet, no doubt, sometimes a horse pulls better for carrying a light load, especially on ground where he does not get a good foothold.

Speaking of Markets

reminds me of the real disadvantage our American farmers labor under, in not having market days, and weekly or periodical markets at the county towns. It may come about yet, when we have hard money, and a dollar is worth 100 cents, and farmers are not the prey of speculators, and are not quicker to learn the bad than the good tricks of the trade.

In some states the days on which court is held are virtually market days to some extent, and might be made still more so. Those occasions are made use of for holding auction sales of live stock and other goods. They are days of general rendezvous, when appointments are made, weeks before-hand, perhaps, for meetings to conclude bargains, to trade horses, to pay interest, or to exchange deeds. If a little interest in the subject could be excited, and farmers of a few contiguous counties would agree among themselves to hold regular market days at the county towns, on court days if possible, and either to put off selling most things until market day, or if, so to speak, forced to sell by high prices offered, to conscientiously appear at the next market day, and report the sale in detail for the benefit of his bretheren, and not keep whist for the benefit of the speculator, market days would soon be established here, and no doubt the custom would prove contagious enough.

In the Island of Jersey, Saturday I found the regular market day. There was much stir in the town of St. Helier, especially in the vicinity of the markets. In the corn-market, buyers and sellers were comparing and dickering over samples of grain of all kinds. The floor was dotted with heaps of sacks, and the whole look of the participants in the scene indicated serious business. In the live-stock market, horses, donkeys, cows, and heifers, and pigs were offered. The last were especially numerous, and more contented, well fed little families one rarely sees, than were snugly ensconced under the seats of the pony carts. White pigs seemed the favorites, but a little Berkshire, and other improved blood, had been introduced with good effect. Sales of stock which had been made during the week, are all settled for on the market day, and so it is with other farm produce. It was the time for shipping apples. These were delivered at the "weigh-bridge," (hay scales), at the head of the pier, during the week, and settled for in cash or checks by noon, or soon after, on the market day.

In a district where so considerable a town as St. Helier is, there is a ready sale for almost every thing that grows on the farm, or in the orchard or garden, and the opportunity is of course taken by those, whom other business calls to the market, to bring a small load at least of whatever there is likely to be a good market for. The city residents, in anticipation of this, make their calculations to purchase at this time. In our climate there might be some objection to Saturday as a market day, lest the surplus articles should be damaged, but there, so cool is the weather, and so equable, that there are few things that would show material deterioration after a day or two in the market, if well taken care of.

Insular Isolation.

The isolation of an island may be so absolute, that it needs strong words to express it—like the "sinfulness of sin." There are some good things connected with it. Contagious diseases among cattle have never crossed the barrier of waters, according to the often repeated testimony of the veterinary inspector. There is the more reason for maintaining non-intercourse with the mainland, or permitting animals for beef or mutton to be imported, only under the closest veterinary inspection.

This is in strong contrast with the system, or lack of system, pursued in this country. When I came home, I brought with me nine head of Jerseys, purchased for Mr. Moses Y. Tilden. Great pains were taken to have them examined by veterinary surgeons, and to have certificates of their perfect health accompany the consular certificate of their being for breeding purposes. Not only so, but by special permission of the Privy Council, the steamer which brought them from the Islands was permitted to come alongside the steamer for New York, and trans-ship the stock without their putting foot on English soil. When they came to New York, not a question was asked about them. One of the butcher's sheep had died, and been thrown overboard a few days before, I presume from having choked itself with a piece of mangel belonging to my cattle. The quarantine officers came on board, chatted with the captain, and "cleared out." I presume they did not even know we had cattle on board, though they may have known it; certainly they did not know but that every one of them had foot and mouth disease. If they had examined their mouths, and found that they had no upper front teeth, I don't know what they would have said. A physician of my acquaintance was once greatly surprised to find that a cow had no upper incisors, and it is quite likely the lack of these might have been taken as evidence of some dreadful mouth malady, if not of "foot-and-mouth." The custom house officers never looked at the certificates of health, and I have them yet. That ship might have been a Pandora's box of evils to the cattle breeders of this country, for ought the authorities knew, and I might have spared myself great trouble, and no little expense incurred in order to demonstrate that

they were all right. A few days after, the Erin brought out a lot of Short-horns from England, for California, and these too were landed without any question as to whether they were sick or well.

Milk-Sickness.

The Islands are not, however, free from cattle maladies. The cows are of course just as liable to diseases, not contagious in their nature, as any are. Perhaps the most distressing of these ailments, is what is called milk-fever. There are different forms of it, but it occurs with them just about as it does with us, namely, attacking the best cows soon after calving. So far it baffles the skill of their veterinary surgeons, and of their "cow-doctors" of best repute. Some cows get well without, or in spite of, treatment, and many die. Old farmers told me, fairly with tears in their eyes, of the loss of this and that favorite cow by this disease. Is it because we milk too long?—because we feed too high?—because the cow is too fat? These and similar questions came up as the subject was discussed. And among some farmers the practice of shortening the feed some time before calving, had actually been adopted—but without definite results as regards milk-fever. Is it not curious how ready farmers are to believe they are feeding "too well" for the good of their stock; and there are no end of objections and forebodings of evil, if the traditions of the elders are transgressed.

I have been kindly remonstrated with for feeding up the small potatoes, called seed potatoes, and used as such in the region where I live), because it would dry up the cows. Indian-meal has the same reputation in some sections, and only a few weeks ago I read in the New York Tribune the statement of a farmer, who had demonstrated to his own satisfaction, that pumpkins fed to his cows had dried them up. Here are three kinds of food, famous for producing milk, each regarded as having the diametrically opposite tendency. Must we then reject all the observations and conclusions of practical men? No, indeed, but many of them must be taken with the "grain of allowance." A false or necessitated economy was father to the opposition to potatoes. The extraordinary fattening qualities of Indian-meal, probably suggested the idea of its drying up the milk. And in regard to pumpkins—pumpkin seeds are well known to be diuretic—it is quite likely that if the seeds be fed, a tendency to dry up the milk might have been observed. Now-a-days farmers usually remove the seeds before feeding pumpkins or squashes.

To return to the subject of milk-sickness. I found no one who could show that fat cows had it oftener than lean ones, that cows hard to dry up had it oftener or worse than those going dry three months, or that high-fed, forced cows were more likely to have the disease than others. It seems reasonable to suppose that an animal whose vital organs had been over-taxed, will be more liable to suffer from *any* malady than one in health. After all, it appears as if the healthiest cows were most liable to milk-sickness, and most likely to die. One thing, however, was generally agreed upon, which is, that the cow's bowels should be relaxed by such food as coarse bran, roots, or linseed-oil-cake. For my own part, I will add, that I consider the last named an invaluable article of diet for cows at calving time. It is highly strengthening, slightly laxative, and not in the least heating. Besides, I think a cow will always make the best and most natural disposition of the placenta. If it be removed, she is deprived of Nature's medicine, and the consequences may be bad. In my own practice I never remove it, and never have had "bad luck."

Are there too Many Farmers?

Just now there happens to be too much of almost everything that is produced by human labor. There is too much coal mined, the furnaces turn out too much iron; too much cotton and too much woolen cloth are woven; too much leather is made, and curiously enough, many people are complaining that there has been too much money made: indeed, some go so far as to declare that the excess in the manufacture of paper dollars is the very reason why there seems to be too much or too many of everything produced by labor. The farmer is no exception. He has too much wheat and corn, or at least there is so much of it to be sold that he cannot get a satisfactory price for his produce. It is the same with fruit, vegetables, cheese, butter, and beef; pork only seems to be a single exception. Are there then too many farmers, as some people seem to think? If so, it would seem that there are too many miners, spinners, weavers, tanners, builders, carpenters, merchants, clerks, and lawyers, as well; for all these people are complaining that their business is as bad or worse than the farmers declare their's to be. It can hardly be the case that there are too many people in the world. If there were too many of all other classes than farmers, one might well suppose that, as farmers are needed to supply others with food and materials for clothing, there would be more customers to purchase their produce, and that their number might be safely increased. The supposition that there are too many farmers may be abandoned as unfounded. Every farmer, who should leave his farm and go into other business, would find a worse state of things than he is endeavoring to leave. If one should sell his farm, and try to invest his money at interest, he would find that there were too many in that business also, and that safe and profitable investments are as difficult to find as high prices for corn or wheat. Under the present temporary condition of things, the farmers are the only class of people that are not too numerous. When their business happens to be poorer than usual, they do not find themselves suddenly discharged without wages, to starve or to subsist upon their store hoarded for such a "rainy day." On the contrary, the farmer has, or he may always have, a sufficiency of the necessaries of life, and most of its comforts, and although he may not have much money passing through his hands or be able to spend much in luxuries, yet his position is so vastly better than that of any other class of workers, that these naturally seek to become farmers, when their own business fails or times are hard. We have now before us numerous letters from persons who have hitherto worked in factories, or at various trades, asking us to advise them how they may invest their savings in a farm or a garden tract, and become independent of a manner of life that is full of "ups and downs" and serious reverses, which they believe a farmer's life to be free from. The fact is, few of us "see ourselves as others see us," and we are too apt to look too much upon the dark side of our own affairs, and the bright side of those of other people, instead of doing the reverse. It would make a great difference in our ideas of things, if farmers were to do this, and there would be fewer of them inclined to think or believe that there were too many of them in the country. As a curious coincidence, we notice the English farmers are inclined to think there are too many in their business there, and are disinclined to pay so high rents for their farms as they have heretofore been doing; and yet the English people are buying over 100 million bushels of wheat from foreign farmers every year. Perhaps they think there are too many farmers here for their profit. It might serve their purpose doubtless for a time, if we did not raise a bushel of wheat for export, but it could hardly better *our* circumstances. Out of our population there are six persons engaged in other industries to every one engaged in farming, and this ratio is increasing every year. Every year farmers are decreasing in proportion to the whole population, and if figures speak the truth, we cannot believe that there are too many farmers now, when there are relatively fewer than there have ever been before.

Hay Racks.

In March, when the last storms of departing winter prevent out-door work, and bring days of enforced leisure, an opportunity may be seized for preparing or repairing the hay or straw racks, for use in harvest time. We have several times previously described and illustrated these necessary appendages to the farm wagon, but every year new ideas occur, which lead to improvement in the old-fashioned racks. We here illustrate two kinds of hay-racks, which have been found more convenient in use than some of the old kinds. That shown at

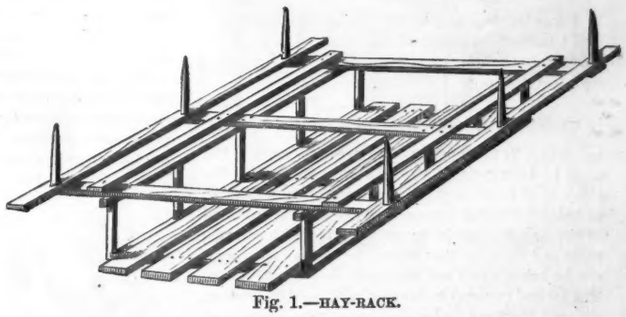


Fig. 1.—HAY-RACK.

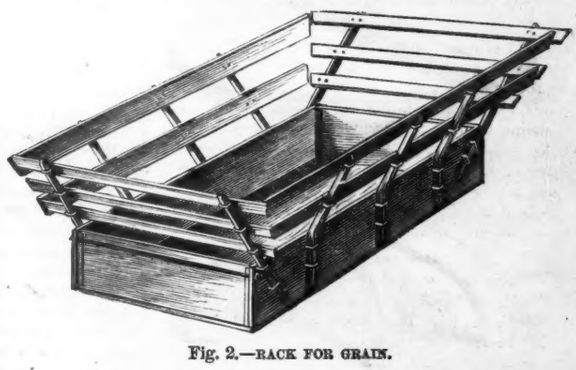


Fig. 2.—RACK FOR GRAIN.

figure 1, consists of a frame made of scantlings, mortised together, and fitting upon the wagon after the box has been removed. Cross-pieces, which project over the wheels, are bolted to the frame, and to these one or two side boards are bolted. A few short, sharpened stakes are fixed into the sides of the frame, which help to hold the load, and prevent it from slipping off from the rack during the loading. A strong rack of this kind may be made to carry a very large load of hay. We have seen over 30 hundred-weight loaded upon one of them, and more might have been easily added to the load. The plan of building this rack is readily seen by studying the engraving. At fig. 2 is shown a rack made to fit upon a wagon body. When grain is hauled, much is sometimes lost through the rack, by shelling. This is almost always the case in hauling ripe oats, and always in drawing buckwheat. To avoid this loss, we have used a strong wagon-box of rough planks, fitted with iron sockets, bolted securely to the sides. Into these sockets were fitted, head and tail racks, as shown in the engraving. For the sides we procured natural crooks,

Fig. 3.—SUPPORT FOR RACK.

from which the bent pieces, shown at figure 3, were worked out. They were strengthened by iron plates on each side of the bend, as there shown. To these were bolted two or three boards, and the frames were then fitted into the sockets for use. By lengthening out the reach, and having the box twelve or fourteen feet long, a very large load may

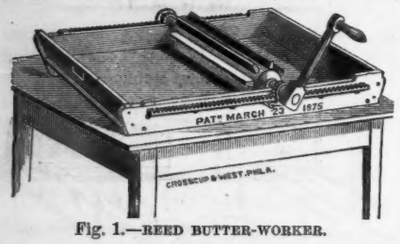


Fig. 1.—REED BUTTER-WORKER.

be taken. If thought best, in order to permit the team to turn readily, the box may be cut at the sides, so as to prevent the fore wheels from binding or being locked or cramped. The first mentioned of these racks, should be put together with carriage bolts and nuts, so that when the season is over, it can be taken apart and laid away in a small space. The second one may be taken apart, and laid aside in separate portions, occupying very little space, and in this lies not the least of their advantages.

Butter-Workers.

The hard work of the dairy is being rapidly transferred from the homestead to the factory, or

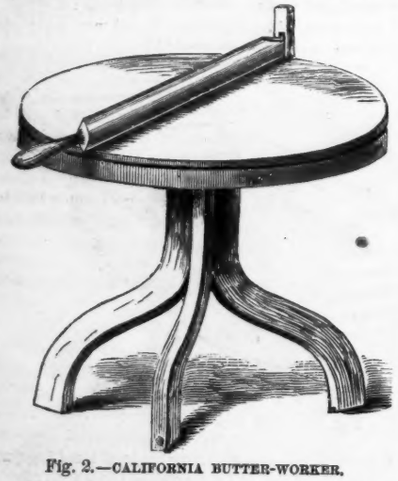


Fig. 2.—CALIFORNIA BUTTER-WORKER.

is becoming greatly lightened by the use of improved machinery. Animal-power in the smaller

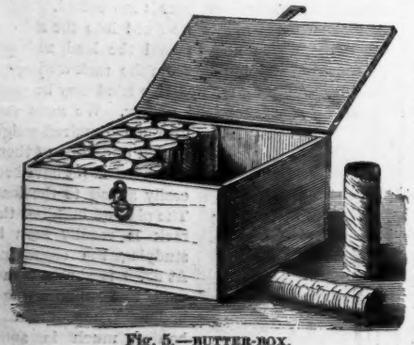


Fig. 5.—BUTTER-BOX.

dairies, and steam in the factories, perform the heavy labor of churning, and the working of the butter is now rendered easy by a great variety of contrivances, which get rid of the buttermilk, and mix the butter as well, at least, as it could be done by hand, and with a great saving of labor. Upon the proper working of the butter, depends to a very great extent its quality, flavor, and its ability to keep sweet for a long period, and the better this is done, the better will be the butter. Much butter is spoiled by bad working, and for the best meth-

Fig. 3.—BUTTER-KNIFE.

ods of working, a peculiar manipulation or "sleight of hand" is needed. The butter must be gashed, and squeezed, so as to provide an outlet for the buttermilk, and to force it out of the mass. But this must be accomplished without any drawing or plastering motion, by which the granular, or waxy, texture of the butter would be destroyed, and a greasy character given to it. The chopping action of the butter-ladle in the hands of the dairywoman, and the careful squeezing of the butter thus gashed into slices—both very laborious when done by hand—are now performed in the most perfect manner by several machines. One of these machines of more than ordinary usefulness, is shown in figure 1. It consists of a tray, and a traveling roller, which

Fig. 4.—BUTTER-MOLD.

is furnished with several wings or radiating blades. The roller is mounted in a frame, which, as the handle is turned, works back and forth upon a metal rack, and carries the roller over the butter in the tray. The butter is cut and gashed by the wings or blades of the roller, and the buttermilk is squeezed out at the same time. If desired, water may be used to wash the butter. This machine is extensively used in Chester Co., Penn., and has been tested by some dairymen of our acquaintance, with satisfaction. It is known as the Reed butter-worker. A worker that is used in a large dairy in California, is shown in figure 2. This particular dairy is known as the Point Reyes' Ranche, and consists of a tract of over 45,000 acres of land, which juts out into the Pacific Ocean, being joined to the mainland by a narrow neck only. There are 3,000 cows upon this point, kept for butter-making. The tract is divided into seventeen farms, which, with the cows, are leased to tenants at a stated rent. One of these tenants has 300 cows. The dairies upon these farms are furnished by their owner with all the modern improvements. Among these is this butter-worker. This is a stout table of hard wood, standing upon three legs, which are screwed firmly to the floor. In the center of the table there is a socket. A revolving top is placed upon this table, and is kept in its position by means of a pivot in the center, which fits into the socket. At one side of the table there is a standard, which rises above the revolving plate. Into this standard fits the end of a sort of wooden knife, shown at figure 3, which has an oval or double-bladed form. The butter being placed upon the revolving portion of the table, is cut and squeezed with the lever until it is sufficiently worked, when it is salted and left for a time. After this, it is again worked, and pressed into molds, (fig. 4), or into cylindrical rolls, which are wrapped in muslin, and packed in a square box upon their ends, (figure 5). The molds are made of *lignum vitæ*, in the manner of a pair of bullet-molds. Each half being filled with the finished butter, the handles are forcibly squeezed together, and the butter is compressed firmly into a solid roll, which drops from the mold when it is opened. The mold is kept wetted with cold water during the operation. When the box is packed full, the lid, which fits close upon the ends of the rolls, is shut down and locked, and the butter is ready for market. Figure 6 represents a small knife of *lignum vitæ*, which is used to run around the inside of the milk pans, to separate the cream for skimming.

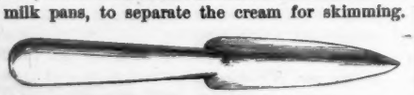
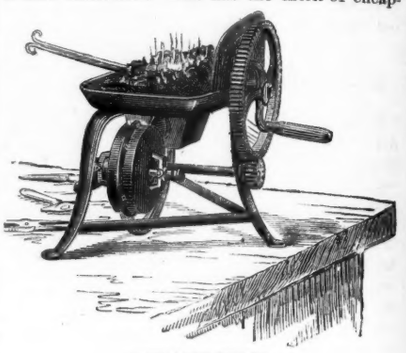


Fig. 6.—CREAM SEPARATOR.

The use of this simple little tool is to be recommended in every dairy, even if but one cow is kept, so that the uncleanly method of separating the cream with the forefinger, may be avoided. Such a knife can be easily whittled out from a piece of maple, birch, or ironwood, with a jack-knife, and should be kept clean and hung up in the dairy.

Portable Forges.

A portable forge, suitable for the farm workshop, is here illustrated. This has the merit of cheap-



PORTABLE FORGE.

ness in cost, and of occupying but little space. It may be placed upon a box or a work-bench, and used with the greatest convenience. It stands upon legs only 13 inches high, and weighs but 50 lbs. The blast is worked by gearing, and is sufficiently strong to get up a heat that will melt inch iron in two minutes, or get a welding heat upon a 2½-inch bar in ten minutes. The bearings are made of bronze, and those of the fan are self-lubricating. The cost is only $16, and there are few machines so useful to the farmer, mechanic, or amateur, that cost so small a sum. In a communication from a farmer, referring to this forge, the writer says that he saved $10 in one day, last harvest, by having a small forge on his farm, which enabled him to repair a break in his mower, without loss of time. These forges are made by the Empire Forge Company, of Troy, N. Y., whose larger machines have been already described in the *American Agriculturist.*

Operating Table for Poultry.

There are occasions when it is found necessary to confine a fowl for the easy performance of some operation, and when this is the case, the arrange-

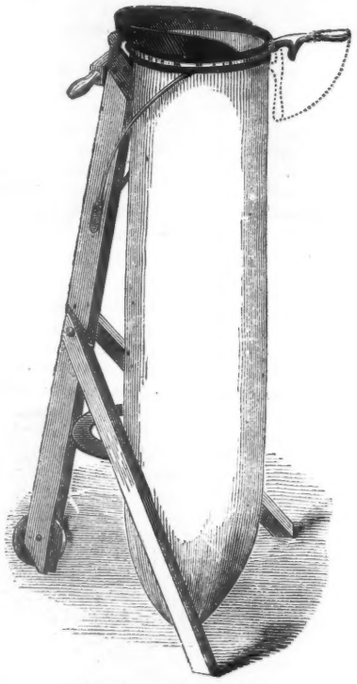
OPERATING TABLE FOR POULTRY.

ment shown in the accompanying engraving will be found very useful. It consists of a stout lath, such as a fence picket, upon which are fastened two cushions; one small one, which supports the rear of the bird, and one larger one upon which its breast may rest. A pair of straps, with buckles, which may be readily made of a pair of suspenders past their usefulness, or of some other soft material, are fastened to the underside of the lath by tacks. To use the affair, a loop of strap iron may

be screwed to the underside of the table, or a leather strap may be passed through two holes in the top of it, and one end of the lath is put through the loop, and made to rest firmly against the frame of the table. The bird may then be placed astride of the cushions, and strapped so as to confine the wings; or it may be placed upon its back, or side, and one wing only confined. In this way any position may be secured by which such operations as setting a broken leg or wing, trimming the feathers, washing, opening the crop to remove an engorgement, or caponizing, may be performed without any interference by the struggles of the bird.

A Combined Bag-Holder and Truck.

Being recently at a railroad depot, where a good deal of grain is received, we were much interested in a man filling some bags with wheat from a car, and trundling them away to a store-house. He used a bag-holder, which served also as a truck, upon which the filled bag could be wheeled away. We quickly sketched the bag-holder in our note-book, as a good thing to make known to our readers, not knowing then the name of the maker of it; but on our way home discovered in a catalogue of the Higganum Manufacturing Company, of Higganum, Conn., an illustration of the same holder and truck. We give our illustration here, which shows for itself the character of the bag-holder, and the method of using it. For use in grist-mills, and barns or granaries, this handy contrivance would be found to save considerable labor and time, as when the bag is filled, it may be wheeled away by taking hold of the handles at the top, and



BAG-HOLDER AND TRUCK.

making a one-wheeled truck of the machine; the bag rests between the projecting legs.

A Non-patented Barrel Header.

Not long since we saw in operation a useful contrivance for pressing the heads of apple or egg barrels into place. Both apples and eggs require to be packed very firmly to enable them to be transported in barrels with safety. Apples loosely packed in a barrel will come to market in a very badly bruised condition, and if the packing around eggs is not very firmly compressed, the eggs and packing change places or get mixed up, and it is the eggs, and not the packing, which then suffers. A barrel of eggs properly packed, with layers of chaff or oats an inch thick between the layers of eggs, and three inches at each end of the barrel, will bear to be compressed as much as three inches with safety; without this compression eggs are almost sure to be greatly damaged. A barrel of apples may fill the barrel to about two inches above the chime, and will bear to have the head brought down to its place. When barrels containing these perishable articles are thus packed, they may receive very rough usage without injury to the contents. The header referred to consists of a bar of half-inch square iron rod, with a large eye or loop at one end, and at the other end two diverging hooks which grasp the bottom of the barrel. The bar is bent to fit the curve of the barrel. When in use, the hooks are placed beneath the lower chime of the barrel, one end of a short lever is placed in the eye, and the lever rests upon a block, which is set upon the head of a barrel properly placed in position. A strap or cord, with a loop or stirrup at one end, is fastened to the other end of the lever. The foot is placed in the loop or stirrup, and the weight of the body thrown upon it brings the head of the barrel into its place; the hands being free, the hoops can be driven down tightly without the help of an assistant. Without the use of the cord and stirrup, two persons are required to head barrels, but with the aid of these the services of one can be dispensed with.

BARREL-HEADER.

To Mend a Broken Tug.

No one should go from home with a buggy or a wagon without a small coil of copper wire and a "*multum in parvo*" pocket-knife. This knife, as its name implies, has many things in a little space, and, amongst other useful things, has a contrivance for boring holes in leather straps. In case a strap or a leather trace breaks, while one is on a journey, and at a distance from any house, he would be in an awkward "fix" if without any means of repairing damages. With the copper wire and an implement for boring some holes, repairs can be made in a very few minutes. The ends of the broken strap or tug may be laid over each other or spliced; a few holes bored in the manner shown in fig. 1, and some stitches of wire passed through in the way known amongst the ladies as "back stitching." The ends of the wire are twisted together, and the job will be finished almost as quickly as this may be read. If a buckle breaks, or the tongue of the buckle is drawn through, and made useless, the end of the strap may be turned back over the loop of the buckle, and the wire passed through the holes in the strap, as shown in figure 2, and the ends fastened. If it is a chain that breaks, the next links may be brought together and wire wound around them in place of the broken link, which will make the chain serviceable until home is reached. In fact, the uses of a piece of wire are almost endless. Nothing holds a button upon one's working clothes so securely as a piece of wire, and once put on in this manner, there is never any call upon the women of the house at inconvenient times for

Fig. 1.—REPAIRING TUG.

thread and needle to replace it. The wire will pierce the cloth without any help, and nothing more is needed than to pass it through each hole of the button and twist the ends to secure them,

Fig. 2.—REPAIRING BUCKLE.

cutting them off close with the knife. There is scarcely any little thing that will be found of so great use about a farm, or a workshop, or in a mill, or even in a house, as a small stock of soft copper wire.

Smoke-Houses, and a Substitute.

When well done, smoking not only tends to preserve meat, but it imparts to it an agreeable and piquant flavor. To smoke meat well, there must be a convenient place in which to hang it, and a house so arranged that the meat may not be exposed to the heat, nor be liable to fall into the ashes. The smoke should be cold, or at least not so warm as to soften the fat of the meat. Probably no districts have a better reputation for their smoked hams, than Virginia, Maryland, and Southern Pennsylvania. The method of smoking meat is the same in each of these localities. The smoke-house is a tight building, raised either upon brick pillars, or upon a brick base, in such a way as to be perfectly safe against rats, and impenetrable to flies. There are two apartments: one above in which the meat is hung, and a lower one, in which the smoke is produced by the slow burning of hickory or oak chips, sawdust, or brush, or corn-cobs. A smoke-house that is very common in Virginia, is shown in figure 1. It is 16 feet high, and 12 to 14 feet square, with a wooden frame, covered with matched boards, the joints covered over with battens so closely as to make the inside as dark as

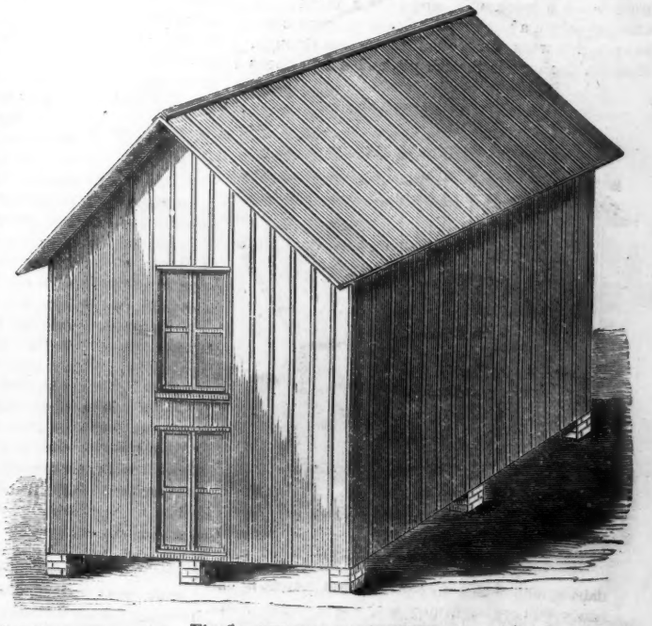


Fig. 1.—VIRGINIA SMOKE-HOUSE.

possible. The house is built upon brick pillars, a foot high, to prevent rats from gaining access to it. The lower floor is of inch tongue-and-grooved

boards, and the upper one of strips, half-an-inch thick, and four inches wide, placed on edge, and a quarter of an inch apart, so as to allow the smoke to pass through. The meat is hung around and across the upper apartment, and up to the peak of the roof, and is kept there, after having been sufficiently smoked, until it is wanted for use. There is a door to the meat-room, which cannot be reached without a ladder, which is always kept locked, as is

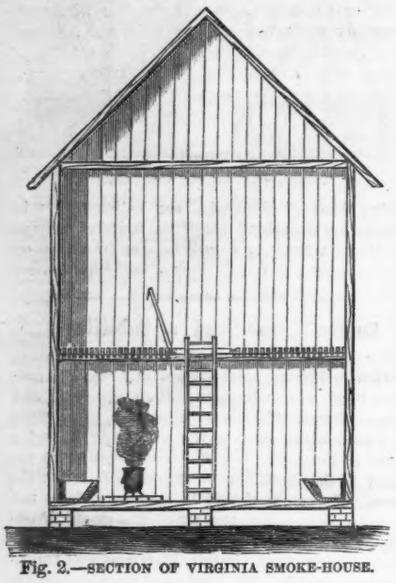


Fig. 2.—SECTION OF VIRGINIA SMOKE-HOUSE.

also the door below. In the lower apartment, there are sometimes troughs, two feet and a half wide, and the same in depth, in which meat may be salted. The section across the middle of the house, showing the two floors, the side troughs, and the iron pot in which the fire is made, is given in figure 2. It is a mistake to make too much fire at one time; a slow fire, which makes a cool, thick smoke, is much more effective than a hot one that consumes the wood rapidly, and gives less smoke. The fire pot is placed upon a few bricks, to prevent the floor from becoming charred. Figure 3 shows a smoke-house common in Maryland and Pennsylvania. This differs from the preceding one in being built upon a brick wall, and over a brick arch, through which a number of holes or spaces are left in the brick-work, for the smoke to pass through. Beneath the arch is the ash pit, and a door opens

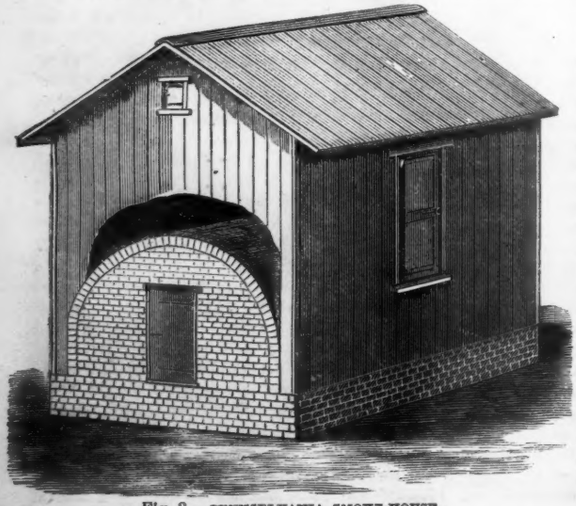


Fig. 3.—PENNSYLVANIA SMOKE-HOUSE.

into this, as shown in the engraving. The door to the meat-room can not be reached without a ladder, and should be kept locked.

It sometimes happens that one needs to smoke some hams or other meat, and no such smoke-houses are at hand. In these cases a large cask or barrel, as shown at figure 4, may prove a very good substitute. To make this effective, a small pit should be dug in the ground, and a flat stone or a brick placed across it, upon which the edge of the cask will rest. Half of the pit is beneath the barrel, and half of it outside. The head and bottom may be removed, or a hole may be cut in the bottom a little larger than the portion of the pit beneath the cask. The head is laid upon one side until the hams are hung upon cross sticks, which rest upon stakes, made to pass through holes bored in the sides of the cask, near the top. The head is then laid upon the cask, and covered with sacks to confine the smoke. Some coals are put into the pit outside of the cask, and the fire is fed with damp corn-cobs, hard wood chips, or fine brush, and the pit is covered with a flat stone, by which the fire may be regulated, and it is removed when necessary to add more fuel. This sort of a smoke-house is very convenient upon the prairies, or in the woods, where farmers have not the facilities or means for building a more permanent smoke-house.

Husking in the Field or Barn.

It is a question with many farmers whether it is better to husk corn in the field or in the barn, and many experiments have been made the past season to test this matter. It does not appear that these experiments have shown any decisive result either way. One farmer who has had his corn drawn to the barn and husked there, the stalks being put away in the mow at the same time, has concluded that with three men in the barn, he can husk as fast as the corn can be drawn with one team. The gain in time by reason of the greater comfort of doing the work under cover, he finds is equal to one-third. We have ourselves tried several plans as promising improvements upon the old one of husking in the field. The corn when cut has been tied up in small sheaves that could be easily handled with a hay fork and pitched rapidly upon a wagon. Before being bound, the sheaves lay and wilted half a day. They were then bound and shocked up much in the same way as small grain, with the buts wide apart to admit air. In this condition the stalks and corn cured very rapidly. The crop was then put away in the barn in the same manner as wheat or oats. It was husked at leisure, during the winter, the job not being finished until January. All the soft corn was moldy, and in some places one or two rats had got into the mow and had spoiled a good many bushels of corn. We never cared to repeat that experiment. Afterwards the corn was cut, bound, and shocked in the manner mentioned, and drawn to a shed near the corn-crib. Here a long bench of planks was fixed upon which the corn was husked as it was drawn. Each husker threw the bundle of stalks out of the shed to the rear through sliding windows, where they were stacked up. Each husker had a corn-basket, which, as it was full, was carried away by a boy and emptied into the crib, an empty basket being left in its place. Two men husked the corn from a field of 13 acres, which yielded over 800 bushels of shelled corn, in 9 days. The man and boy who hauled the corn had time enough to stack the stalks during the times that the team was waiting to get rid of their load. The total cost of hauling the crop, husking, cribbing, and stacking the stalks, was between 5 and 6 cents per bushel of corn, which was the cheapest husking we had ever had done. It certainly does seem that, at least upon eastern farms, corn-husking may be done in a more convenient, and cheaper manner, than kneeling upon the cold ground in the chilly November days with an occasional snow storm, or rain storm, as a change.

Cheaper Production is Higher Price.

If a bushel of wheat or a pair of shoes can be produced by one day's labor, and sold for a dollar, the dollar is the value of the day's labor. If we can, by improved methods of working, or greater skill or activity, produce two bushels of wheat, or two pairs of shoes, by a day's labor, and still sell them for a dollar each, the value of the labor is two dollars. We have then doubled the value of our labor, without increasing the cost of it; consequently if the cost of living remains the same, our profit is doubled. The shoemaker, and many other mechanics, have succeeded by the exercise of increased skill in their work, in thus doubling their product, without a corresponding decrease in the price of their goods. The farmer has not succeeded in doing so much as this, although by the use of drills, harvesters, and thrashing machines, it costs him less in labor to produce a bushel of wheat, than formerly. But the most laborious part of his work is not cheapened, nor is there any probability that it soon will be. Plowing and harrowing can not cost less for some years to come, than they now do. But the work may be made to cost less, practically, if we can make it more effective. If we plow an acre of barren soil, we lose our labor altogether, and the cost is exactly equal to the value of the labor expended, because there is no return.

Fig. 4.—SUBSTITUTE FOR A SMOKE-HOUSE.

If we plow an acre of ground which produces a crop worth exactly the cost of the labor, the labor is paid for, but there is no profit. If the ground is rich enough to produce a crop double the value of the labor expended, the profit is equal to 100 per cent upon the expenditure. The way to better profits very clearly lies in the direction of enriching the soil. This is the whole secret. What we then produce will cost but half what it formerly did, and we therefore get a double price for our crop, which merely represents so much labor. There is no fear that this method will be worked out, nor danger that the yield of grain will be doubled in a very short time. There is every certainty that those few farmers who will succeed in making their farms produce double the former crops, will not be forced to receive a less price for what they have to sell. They have every opportunity then to double their income in the course of a few years, if they will only take the right methods. How can this be done? It can not be done without working for it with brains as well as with the hands, and becoming more skillful and painstaking in the use of what means may be made available, and exercising some patience, for it cannot be done at once.

A NEW DODGE.—The usual practice of advertising "estrays" in the local papers, has given occasion for a new mode of swindling. A person "dressed as a farmer," (with a few straws in his hair, and chaff in his beard perhaps), gets the description of the "stray" from the paper, and visits the person who has taken it up. Then he says "he has come a long distance, that the critter is hard to drive, and rather than have the trouble to take it so far home, he will sell it at half its value." If the bait is swallowed, by and by the true owner comes around, and the cow or horse has to be given up.

Hollow Walls for Houses.

A double wall, with an air space of two or three inches in the center, is a greater obstacle to the passage of heat (and consequently of cold) than a solid wall, although that be much thicker. Whenever it is desirable to have a house, greenhouse, or other building, impervious to heat or cold, or dampness, it should be built with hollow walls.

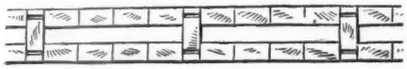


Fig. 1.—HOLLOW WALL OF BRICK.

There are many methods of securing this hollow air space in walls. In brick, stone, or concrete houses, it is made by what is known as "furring": that is, fastening strips of wood upon the inner side of the walls, and lathing and plastering upon them. In frame-houses, the spaces are made by lining the inside of the house with paper, felt, or board sheathing, upon which the lath and plaster is laid, by building up brick set on edge with mortar between the lathing and the outside covering. But where the wall can be built hollow, it is far the best plan to do so. A hollow brick-wall may be built as in the section illustrated at figure 1.

Fig. 2.—HOLLOW WALL OF EDGING STRIPS.

There are two walls, each half a brick thick, with a space of four inches between them. This takes very little more material than a wall of one brick thick, but is stronger when tied in the manner hereafter described, and is warmer and drier than greater thickness solid wall. The outside and inside walls are tied together by cross bricks placed here and there, and laid two inches upon each wall. Thus there is a space of two inches upon the wall left at each end of the "tie" brick. This is filled in by a chip taken from the end of a brick, and not quite two inches thick, so that when it is laid in the empty space, there is half an inch or so between it and the end of the tie brick. This breaks the continuity of the outside and the inside of the wall, and makes the air space as nearly perfect as possible. There should be a sufficient number of "tie" bricks built in the wall, to bind it together substantially. This may safely be left to the judgment of the mason, but under ordinary circumstances, a tie to every three courses of brick, and for every three or four feet in length, would be ample for strength.

Some years ago we saw a very ingenious method of building a wooden house with double walls out of what is a waste material, and which can be procured for nothing in those localities where there are saw-mills. When boards are sawn from the

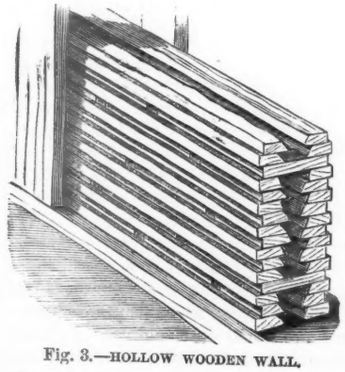


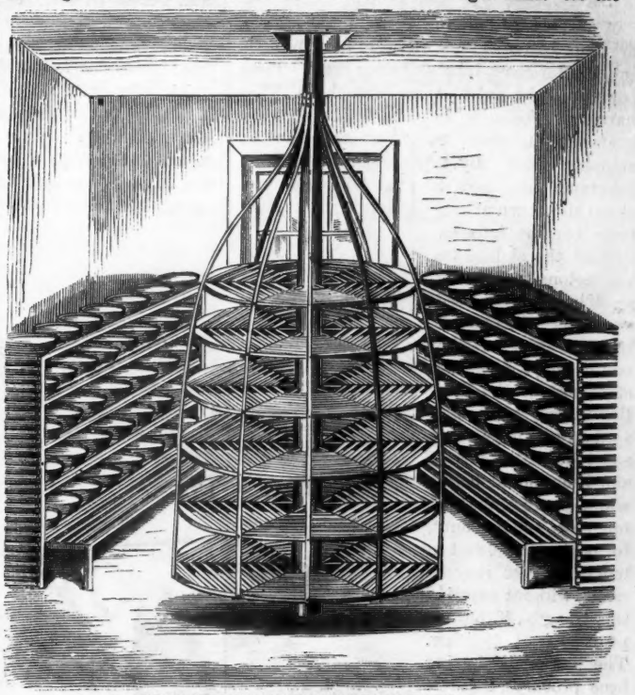
Fig. 3.—HOLLOW WOODEN WALL.

logs, the edges of some of them are rough and irregular. These edges are sawn off in order to make the boards fit for sale and use. These "edgings" are generally thrown out of saw-mills that are run by water, or in which the saw-dust suffices for the fuel, and may be had in many places for carting. These strips may be used in building by first laying the sills and lower beams in the usual manner, but not making any mortises for the studs. Then a strip is laid upon the sill with the smooth edge even with the outside, and nailed down to it with tenpenny nails, and another strip is nailed in the same way even with the inside edge. The ends of the strips are sawn off square. Then other strips are nailed upon these, until eighteen or twenty inches high. Then cross-pieces are nailed on to bind the walls together. Thus there are two walls, smooth upon the outsides and uneven inside, and with an air space, wider or narrower as the case may be, in between them. Figure 2 shows the character of the wall. The ends of the strips are overlapped at the corners. But to save the cost of lathing the walls, the strips may be laid so that the edge of every alternate one projects half an inch beyond the one next to it, both upon the inside and outside, if desired. This leaves a rough surface, upon which the plaster may be directly laid without any lath. The window and door-frames are built in as the wall is laid, and when the top of the first story is reached, the joists are laid and built in, so that the whole is remarkably solid. The outside may be covered with dressed boards, or plastered and "rough cast." As the work can be done by any person who can drive a nail, a house of this kind, in some localities, will cost but very little, and no skilled labor is needed but to make the doors and windows, and to fit the roof.

An Awl for Mending Harness.

A convenient awl for repairing harness may be made in the following manner. Take a broad-pointed awl of the common sort, grind the point to an angle, and cut with a fine file, or what is better, a fine saw for metals, such as is furnished with the common scroll-sawing machine for brackets, a narrow slot or groove, deep enough to carry a waxed end. The cut should be made as shown in the engraving. This groove should be smooth upon the edges, so as not to cut the thread. To work with this awl, it is forced through the leather in the usual manner, and a waxed thread is drawn through, so that half of it is upon each side of the article to be stitched. The awl is then withdrawn. It is then pushed through where the next hole should come, and the thread upon the near side is carried through with it, as before. The awl is then withdrawn, leaving a loop of the thread upon the further side of the leather or strap. The other thread is passed through the loop, and the looped thread is drawn back again, so that the two threads are crossed about the center of the hole. Then this is continued, until the work is finished. It will be noticed that the sewing is in fact like that of a sewing machine, and after a little practice it will be found that the stitching may be done without dropping the first thread from the awl, but the thread will be drawn back again, after the other one has been put through the loop, and in drawing the threads tight, the awl will be slipped along the first thread, to get sufficient slack for the sewing. To make the thread for sewing harness, six or eight strands of shoemaker's hemp are gathered into one cord, and well waxed. The loose cord is then rubbed over the knee in one way with the palm of the left hand, while one end is held in the right hand. As the cord is twisted by this rubbing, it is rolled up into a ball, or gathered into a loop by the fingers of the right hand, until it is all twisted, when it is again waxed. In this manner of sewing, no bristles are needed for the ends of the threads, as it is not necessary to pass it through the holes in the leather.

HARNESS AWL.



MILK SHELVES AT BEACON FARM DAIRY.

Revolving Milk Shelves for a Dairy.

On a recent visit to Beacon Farm, we saw a new arrangement of shelves in the dairy, which has been drawn and engraved for the benefit of our readers. The whole affair is so well shown in the illustration, that little description is needed. It consists of an eight-sided central shaft, provided with an iron pin at the bottom, which works in a socket in the floor beneath; the upper part is carried through the ventilator in the upper floor. Eight arms are mortised into the shaft to support the shelves, of which there are six. Strips are carried from the upper part of the shaft over the edges of the shelves, as a further support to them. The shelves, which are about 15 inches apart, are made of lattice-work, thus furnishing ventilation to the bottoms of the pans. The lowest shelf is six feet in diameter, and about two feet above the floor. The whole frame work revolves upon the pin at the bottom, and is readily moved around as the pans of milk are placed upon the shelves. This arrangement makes a great economy of space. The pans are not shown upon the shelves, so that the structure may be seen, although at our visit every shelf was fully occupied. The side shelves seen in the engraving have been before described; they too are very economical of space. The whole of the shelves are well painted in pure white.

CATTLE KILLED BY RIFLE BULLETS.—A singular case of lead poisoning has occurred on a field in Scotland, which adjoins a rifle range. Four cows which pastured in the field died, and on searching for the cause, a quantity of spent bullets from the rifle range were found in their stomachs. As rifle shooting is now becoming popular and frequent in this country, those farmers whose cattle graze upon or near the ranges, should exercise caution.

Building Ribless Boats.

A method of building boats, by which ribs are dispensed with, has recently been brought into use for coast, lake, and river craft. These boats are light, swift, strong, and cheap. They have been found to be remarkably good sea boats, and to stand rough weather without shipping water. By this method of building, fishermen and others, who use boats, can construct their own at their leisure, and in many cases become independent of the skill of the professional boat builder. The materials needed are clear pine boards, one inch thick, a keel of oak or elm, a stem and stern-post of the same timber, and some galvanized iron nails. For small boats, the boards and keel should be the whole length of the boat intended to be built, for boats over 16 feet in length, splices may be made without injuring the strength; if they are properly put together. The materials having been procured, a frame or a set of tressels are made, and the keel is fitted to them in the usual manner, by the means of cleats on each side, and wedges. The stem and stern-post are then fitted to the keel in the usual manner, the joints being made watertight by means of layers of freshly tarred brown paper laid between the pieces, or by the use of a coating of thick white lead and oil. Previously to being fitted together, the sides of the keel, stem, and stern-post are deeply grooved to receive the first strip of planking. The boards are then ripped into strips one inch, or an inch and a half wide, according to the desired strength of the boat. For rough work, such as fishing with nets, or dredging, an inch and a half would be a proper width for the strips. The ripping may be done with one of the hand circular sawing machines, or at a saw-mill, with great rapidity. The first strip is then nailed to the keel, a coating of tar or white lead having first been given to the groove in the keel already prepared for it. The broad side of the strip is laid next to the keel. A set of molds, corresponding to the lines or form of the boat, are cut out of inch boards, and tacked to the keel in the manner shown in the engraving, with the help of cleats upon each side. Then one strip after another is nailed to each preceding one, and the shell of the boat is built up of these strips. Each strip is trimmed down at the ends in a proper manner, with a draw knife, or a plane, and as each one is nailed to the preceding one, some of the tar or white lead is brushed over it, to make the joint tight and close. A sufficient number of nails is used to hold the strips firmly together, and the heads are driven down level with the surface of each strip The work proceeds in this manner, forming the strips as each is fitted, bending them to the shape of the molds, and nailing one alternately upon each side, so that the molds are not displaced by the spring of the timber. When the sides of the boat are completed, the fender and gunwales are fitted, and bolted to them to strengthen them, and cleats are bolted inside for the seats to rest upon. The molds are now removed, and the boat consists of a solid shell an inch and a half thick, with not a nail visible excepting on the top strip, and conforming exactly in shape to the model. To give extra strength, short pieces of the strips are nailed diagonally across the inside, from side to side, and across the keel. In this manner a great deal of additional stiffness and strength is given to the boat. A boat of this kind is easily repaired when injured, by cutting out the broken part, and inserting pieces of the strips. For a larger boat, which requires a deck, the strips are wider and thicker, or a diagonal lining may be put into it; knees are bolted to the sides, and the beams to the knees, the deck being laid upon the beams. The method is applicable to boats of all sizes, and for all purposes, and its cheapness and convenience are rapidly bringing it into favor. If the material is ready for use, two men can finish a large boat in two weeks, and a small one in one week. These boats being very light and buoyant, considerable ballast will be necessary to make them steady enough in case sails are used.

BUILDING A RIBLESS BOAT.

The Paint Root—Its Effects on Pigs.

Those who study the native plants of the northern states, know as an exceedingly rare and local one, *Lachnanthes tinctoria;* the first or generic name means *woolly flower*, and the second, or specific name, *tinctoria*, has reference to its dyeing or coloring properties. In some works "Red-root" is given as the common name of this plant, but as this same name is, in various parts of the country, applied to at least three other plants, it is preferable to accept that by which this is known in the southern states, where it is most abundant, and call it Paint-root. The engraving gives an idea of the general appearance of the plant; the stem, which here is cut for convenience, is, in favorable localities, two to three feet high; the leaves, about half as long as the stem, are narrow, the lower ones clasping one another like those of an Iris; the flowers are in a dense cluster at the top of the stem, and being woolly without, and of a dingy yellow color within, cannot be called showy. While the minute structure of the flowers is of interest to the botanist, we will not describe them further than to say that they are six-parted, and have three stamens and a single style. The plant belongs to the Blood-wort family, (*Hæmodoraceæ*), of which we have but few examples in this country, and among familiar plants it is most closely related to the Amaryllis family, to which the Jonquils, Narcissuses, and others of our spring garden flowers belong. The Paint-root contains an orange-colored juice in its stems, and especially in its fibrous roots, which are red, and are said to yield a dye similar to that of madder, but we can not find that they have ever been largely used for this purpose. This plant is very abundant in the southern states, from Florida northward, in sandy swamps near the coast, and is common in the pine barrens of New Jersey. Many years ago, while with a party of botanists exploring a little known portion of Rhode Island, where within a restricted area the plants are more like those of North Carolina than those of New England, the late Prof. Bailey of West Point, who was one of the party, fairly shouted with surprise when this plant was met with; he said he should not have been more astonished had he met with a Palmetto growing wild in that locality, which is not far from Kingston, R. I., and so far as is known, its northern limit.

We have described and figured this plant, not solely because it is of botanical interest, but for the reason that, insignificant though it may appear, it has an important bearing upon the agriculture of many of the southern states. Those who have traveled much in the Atlantic southern states, from Virginia to Florida, are aware that black pigs are much more common than white ones; the reason given for this preference for black pigs has been that they do better under a hot climate than white ones, the same as negroes are better suited to such conditions than white people. While it appears that the skin of black pigs is less affected by the intense heat of the sun than that of white ones, this is by no means the only reason, or the main one, why dark colored swine are more common throughout the southern Atlantic states than the light ones. So far as this portion of the country is concerned, it turns out that the plant in question, the Paint-root, is at the bottom of the great preponderance of black over white pigs, as the white ones, if allowed free access to the Paint-root, are soon killed off, while the black ones can eat it with impunity and even fatten upon it. Darwin, in that most remarkable book, "Plants and Animals Under Domestication," quotes this case to show that

characters of trifling value, such as that of color, may be of importance in natural selection, in adapting animals or plants to a locality, as they are known to be in artificial selection by man. The immunity from adverse influences of certain dark colored fruits is pointed out by him, and that of black pigs in this case, is not the only instance in which there is a direct repearance of "founder;" ultimately their hoofs drop off, and deformed hoofs may grow out; in the meanwhile the pigs become permanently blind. If when blindness and lameness are first noticed in young pigs, they are removed to a pasture where they cannot get at the root, they soon recover; and even old ones that have become incurably blind will take on fat if given other food, and their flesh is eaten without ill effects. Dr. S. states that the color of the excrement and the urine of the pigs will show at once if they have fed upon the Paint-root; and that the animals, when killed, show by the color of the enveloping membrane of the bone, (*periosteum*), the coloring effects of this food.

PAINT ROOT.—(*Lachnanthes tinctoria.*)

CAPE IVY.—(*Senecio macroglossus.*)

lation between the color of animals and their adaptation to certain localities, and their susceptibility to certain poisons. White horses in eastern Prussia, if they eat mildewed vetches, soon have ulcers break out upon the skin, and even those which are spotted with white, have every place upon which there are white hairs, affected by troublesome sores, while horses with no white spots are not injured. In a part of Sicily there are only black sheep, as the white ones are all killed off by a species of St. John's-Wort, (*Hypericum*), which grows there, and other instances are given. The case of the black pigs in this country is quoted by Darwin on the authority of that acute observer, the late Dr. Jeffries Wyman. Upon this point we are able to present very recent testimony from Dr. P. Stotesbury, of Clinch Co., Ga., one of the Executive Committee of the Georgia State Agricultural Society, a gentleman who takes a most lively interest in every product of his state, and to whom we were largely indebted for our account of the Wire-grass published in January last. Dr. S. writes us that his own experience, and that of his neighbors, is, that while black pigs are unharmed by feeding on the Paint-root, white ones are invariably injured by it; the white pigs, if allowed to feed freely upon it, become lame, with every ap-

A New Climber.—The Cape Ivy.

"Plants, Henry A. Dreer, Philadelphia," was on the outside of the parcel, and we made haste to inspect the inside, knowing that when a parcel comes from this well-known establishment, it is likely to contain something desirable. We took out a new geranium or two, of which great things are spoken, and then—an Ivy. Mr. Dreer knows our fondness for odd forms of Ivy, but what should induce him to send this tiny specimen, and by mail too, which, though a respectable looking Ivy, presented nothing very remarkable, was for the moment a puzzle, until we touched the leaves, when we found that the plant was no Ivy at all!—"Fairly taken in"—yes, we own that the eye did deceive us, but the touch did not, and we were quite willing to be deceived, for here was the very plant for which we had been longing. We had read in the recent European journals of *Senecio macroglossus;* were proposing to send for it, and here it was right at hand! By this time every flower-growing reader of the *American Agriculturist* knows the German or Parlor Ivy; that quick-growing, tender vine, now so popular for window and basket culture, and so useful for soon covering a screen in the garden. The German Ivy, as we have stated before, is not an Ivy proper at all, but belongs to the great composite family, it is *Senecio scandens*, and own brother to the Groundsel, a common weed, to the Tassel-flower of the gardens, (sometimes called *Cacalia*), and to that golden yellow Squaw-weed, or Golden Rag-wort, (*Senecio aureus*), which is everywhere so bright, especially in wet places, in spring. This new plant has received in Europe the name of Cape Ivy, and it well distinguishes it from the other climber, which, though called German, comes from the same locality—South Africa. After growing the little plant from Mr. Dreer for a few weeks, we have had an engraving made of it, which, while the leaves are not so large as they would be on a stronger plant, gives a good idea of their shape and ivy-like appearance. While the color of the better known German Ivy is of a light and rather yellowish green, the leaves of this have the dark and blackish green so peculiar to true Ivy, and which gives to this newer one a richness which the other lacks; besides this, the leaves have much more substance than those of the other, though they are still soft, and have not the rigidity of those of true Ivy. Some months ago we made the statement that, though we had in 1867 figured the German Ivy in flower, it rarely bloomed; since

then several have informed us that it flowered with them, and one friend sent us abundant specimens. The flowers in the "German" are in large clusters of small heads which have no ray-florets, and are only about a quarter of an inch across, while the Cape Ivy has but one or two heads at the ends of the flowering branches, which have showy rays, and are two inches or more across. We have not seen the plant in flower, but the "Garden" (London), some months ago, gave a small cut of the flowers, and we borrow some from that engraving to place with our own; while the leaves are shown of the natural size that they are upon our small plant, the detached flowers here given are much reduced. The "Garden" and other English papers say that this Cape Ivy is quite as well suited to house culture as the other; if it proves to be as manageable as the German Ivy, it must become very popular, on account of its finer color and closer resemblance to Ivy.

N. B. It very rarely happens that we describe a plant of any kind, but we receive letters from persons in various parts of the country, asking us to send them plants or seeds, and we are obliged to repeat from time to time, that we do not keep or sell plants or seeds. If a plant is rare, we state the source whence we obtained it; if no mention of this kind is made, and the plant is a cultivated one, then it may be had from any of the regular seedsmen or florists.

Notes from the Pines.

It is pleasant to know that one's readers do not forget him, and as there are quite a number who take an interest in my off-hand talk about garden matters that may not have read the first one, allow me to say that at the outset I promised to write only from "time to time." This is mentioned in acknowledgment of the kindly inquiries from several who ask after "the man at 'The Pines,'"—Inveterate letter writers, when they take up a sheet, do not stop when they get through, but feeling that they must cover the paper, after they have quite written out, fill up with talk about the weather. Unlike these, I begin with the weather...."There never was such a winter," is the common remark. These do not look at the records; I have no data at hand, but I am quite sure that we have had two very much such winters since 1860.....The great mortality among trees, evergreen and deciduous, for the past few years has been due to the fact, that the soil was very dry when winter set in, and trees dried out, quite as much as they froze out. It is several years since trees were so well prepared for a hard winter, as they were last fall; the wood ripened well in the genial autumn weather, and the ground was abundantly moist, or as the old people say, "the springs were filled up before winter set in." Still, up to the last of January we have had but few days of really cold weather; the river is open, and for a great part of the time the ground has either not been frozen at all, or but a mere crust of a few inches. Still, as we can not foretell the weather, I took especial care with my young evergreens. Fewer of the fine evergreens would be put down as tender, were they properly cared for while yet small. If a tree is of slow growth above ground, it is very sure to make a slow root-growth, and even hardy evergreens are helped by protecting them until, as the gardeners say, they get "a good hold of the soil." I think that in

Protecting Young Evergreens

on light ground like mine, I do quite as much good in keeping the soil from drying out, as I do in protecting the plants from severe cold. I have found no better protection for young evergreen or deciduous trees, than the boughs of pine and cedar stuck in the ground around them, or laid among them; these protect the young plants from the cutting winds, prevent them from damage by heavy snow-falls, and yet allow a circulation of air among them. But the supply of this material with me is limited, and having trimmed "The Pines" all they then needed, I last year resorted to a substitute, which answered admirably. Brush from the woods (the much branched loppings from deciduous trees cut for fire-wood), was laid around and among the young evergreens, then some long marsh-hay upon this, and to keep the hay from being blown away, some of the straighter pieces of brush were laid upon that. In this way I kept *Osmanthus illicifolius*, *Skimmia Japonica*, and other usually tender things through the severe colds of last winter..... We do not yet by any means know

The Northern Limits

of a number of our native southern plants. Though last winter (74–75) was so hard upon most things, the Carolina Jessamine (*Gelsemium*), and the Carolina Pink-root (*Spigelia*) came out all right, and *Erythrina herbacea*, a part of which was left out to die, obstinately persisted in living.....If there is any vegetable product, eaten by any one, anywhere, that can be grown in this country, I endeavor to try it. This desire to be practically acquainted with all esculent plants, sometimes brings to the table dishes, which make, as the play-bills say, their "first and only appearance;" after great trouble in procuring seeds, and care in cultivating, the products often find the cows, the pigs, or the chickens their only patrons. On the other hand, these new introductions sometimes, like serial stories, are "to be continued." Of late I have turned my attention to old "novelties." Ever since I have had a garden, I have wanted a bed of

Sea Kale.

All the European works and journals highly praise the Sea-Kale, (*Crambe maritima*). Gardening friends, who were brought up in the British Isles, have often asked me, "Have you Sea-Kale?"—"No."—"Ah, that is the best of all, you should have that."—"Have *you* it?"—"No."—And this has happened a number of times. I have tried seeds from every seedsman, year after year; I sowed them in the pods, and shelled them out, I have sowed them in hot-bed, and in the open ground—but never a plant did I get from the seed. I became, as it were, a *crambe-maniac*. Last fall, in writing to an English friend, with whom I exchange flowering plants, I begged him, if the United Kingdom could furnish them, to send me a dozen roots of Sea-Kale, and added in my desperation—"at any price." My friend sent some root-cuttings from his own garden, and from these I have a half-dozen or so of plants, which will give me a start for the long wished for bed. I mention this merely to show the difficulties that one meets with, who wishes to do anything out of the ordinary way. Another old novelty is

CARDOON.

Cardoon,

which, though it has been grown in European gardens for over two centuries, is scarcely known here; indeed, I never saw it in any other garden than ours, and doubt if any of your readers who have not lived in Europe, ever saw or tasted it. This plant is own brother to the true or Globe Artichoke, rarely cultivated, at least at the north, for the scales of its enormous thistle-like heads. In the Cardoon the leaf-stalk is the part eaten, just as in celery. The plant is a biennial, used in the first year, and is only kept until the second year when it is desired to raise seeds. It looks like an enormous gray thistle; its leaves, three to four feet long, are so cut and divided, that a single specimen would make a showy lawn plant. The seeds are sown in rich soil in May, putting in three or four seeds at intervals of 18 inches; when well up, all but one plant in a place are pulled out, and these are kept well cultivated. In September, when they are blanched, this is done in various ways, some merely tying the leaf-stalks closely together, and earthing up the same as celery, but a much neater method is to closely wind the cluster of leaf-stalks—or head, as we call it in celery—with a straw band; having no suitable straw to twist, we adopted another plan; the leaves being tied up closely together, were wound around with stiff brown paper, and earthed up, the object of the paper being to keep the earth out of the heart. The blanching went on fairly, considering it was not started until late, and when real freezing weather came on, the plants were taken up and stood in boxes of earth in the cellar. There are several varieties cultivated in Europe, some with very prickly, and others with smooth leaves; ours was of the kind called "Large Solid," and an ugly customer to handle, on account of its prickles. Removing the outer leaves, there is in the center a heart of blanched leaf-stalks, and undeveloped leaves, as large round as one's arm, and of the appearance shown in the engraving. To prepare for cooking, the stalks are separated, the spines trimmed from the edges, and peeled; we have cooked them in only one way—cut into inch pieces, stewed tender, and served with a cream sauce, the same as we do celery or salsify. I hardly know what to compare it to, but Cardoon was voted "very good." A friend who has lived in Europe, says that it is very fine cooked with cheese, after the manner of maccaroni.

Roses from Seed.

A correspondent complains that the seedsmen give him no information about raising roses from the seed. There are very few people in this country who will take the time and trouble to raise seedling roses, and these need no instruction. Some growers obtain seed by crossing desirable varieties in the usual manner, but the majority sow seed from good sorts, knowing the tendency to vary, and take their chances. The first requisite is thoroughly ripened seed; the next is that it should never become dry. Some prepare a rich, light soil in a frame, remove the seed from the hips, or berries, sow them in drills, or broadcast, and cover lightly; the frame is left open until the soil is frozen hard; and then covered with shutters to keep out mice. The seedlings will appear when the weather gets warm. Another plan is to sow in boxes as soon as ripe, and set them under the stage of the greenhouse, where they will be kept moist; when the plants begin to appear, they must be brought to the light. If the seeds cannot be sown until spring, they must be kept in the hips and mixed with sand; if allowed to get dry, they will not grow until the second or third year, if at all. Those who have seeds which they have allowed to dry, can yet mix them with earth, and allow them to freeze and thaw. Some seedlings bloom the first year, others not until the second or third. The flower is not so good the first year of blooming as it is the second or third. With the best success, the great majority of the seedlings are worthless. Raising seedling roses is an occupation which many of our amateur gardeners might find interesting, with the possible chance of now and then securing a prize.

MANURES FOR THE GARDEN.—"We have no stable manure, and cannot buy it, what shall we use on the garden?" is the question which comes to us several times a week, not only from those who have private gardens, but from market gardeners all over the country. Night-soil is a good substitute for a while, but it does not seem to do so well used continuously. Of the commercial manures, Peruvian guano, when pure, is the best, and near the coast, as cheap as any. Next in order are pure fine bone, dried blood, and a good phosphate. Our best gardeners use these at the rate of 1,200 to 2,000 lbs. to the acre, broadcast, or from 200 to 300 lbs. to the plants in hills. Either of these concentrated fertilizers should be composted for several weeks

before using, with wood's earth, (leaf-mold), dried muck, or good dry garden soil, one part of the fertilizer, thoroughly broken up if lumpy, and three of the dividing material are to be thoroughly mixed in a dry place under cover, and shoveled over two or three times at intervals of a week, and then put in barrels or boxes and kept dry until wanted for use. If there is a brewery anywhere within five miles, it will pay to buy spent hops, if they can be had at the cost of stable manure; they ferment very rapidly, and will need turning, and if disposed to get too hot, may be mixed with some earth. Ashes are useful, leached or unleached, but are not to be mixed with, or applied at the same time with, the above named fertilizers. We have seen no neighborhood and no place, (our own included), where all the resources were made use of. Wherever there is a manufacture that uses bones, ivory, hair, whalebone, or other animal matter, except tanned leather, there are useful waste substances to be had. Slaughter-house offal, soap-boilers' waste, the dead horses and other animals of a town, street sweepings, especially of paved streets, should all be looked after. Near the sea-coast and the great lakes, unmarketable fish, and fish offal are available, and make excellent manure. How many of those who complain of a scarcity of manures, save all the wastes of the family? We know how difficult it is to have this properly attended to, but we also know that it can be done. The house wastes, washing water, chamber slops, dish-water, and all liquid matters, may be run into a tank as the basis of liquid manure, a matter much neglected in this country, or they may be turned upon absorbing material in a heap, or better, in a pit made for the purpose; dried muck or peat, leaf-mold from the woods, leaves, or sods, may be used. In most localities the road-sides and out-of-the-way places afford an abundance of turf, which, when dried, makes an excellent absorbent, and the fine roots with which it is filled, rot into an excellent manure. But all composts require time; for present needs some commercial fertilizer must be bought. Peruvian guano, fine bone, superphosphate, dried blood, or fish guano, if good of their kind, though they differ in price, are of about equal value, *i. e.*, it takes enough more of the cheaper fertilizer to produce the same effect, to bring its cost per acre up to that of Peruvian guano. Of course some "fertilizers" are nearly worthless, and this general statement is based upon the supposition that those named are intrinsically worth the price asked for them. We can make only this general reply to the recent letters of many anxious gardeners, and moreover advise them to study carefully the articles by Prof. Atwater, on Fertilizers, which are now in course of publication.

Blackberries in Indiana in 1875.

BY STEELE BROTHERS, LA PORTE, IND.

We sent you last winter some notes on Blackberries in 1874. Though our statement of facts then given were disputed by some, we made no reply, preferring to wait until we could speak from another year's experience. This year the Blackberry crop of La Porte Co. may be said to have been a total failure. Even the wild berries were very scarce. The Kittatinny, Wilson's Early, and New Rochelle, or Lawton, were killed to the snow line. From two rows of Wilson's Early, that last year yielded ten bushels, we picked less than half a bushel this year. The Snyder on our place, all one-year-old bushes, was killed to the ground. Some other patches leaved out and blossomed, and set fruit, but did not ripen half a crop. A professional man in the city, who is a successful amateur gardener, told us that his Snyders were killed to the snow line, and that he had grubbed them out by the roots. We went around toward the last of the blackberry season to examine some patches of the Snyder, and see how they had done. In the first patch we visited, fully two-thirds of the canes had dried up before the berries were grown, without ripening a single one. On the canes that still lived, the fruit was so small as to be almost worthless. The next patch was somewhat sheltered by a double row of evergreens on the north, and this was not quite so badly injured. On the south end, farthest from the wind-break, about half the canes were dead. On the north they were better, but still the fruit was very small. The past season here was wet, and very favorable for small fruit. Strawberries and raspberries did remarkably well. Our Wilson's Early blackberries, growing on branches near the ground, and protected by the snow during the winter, were as large and fine as ever. All the Snyders we saw this year, both on the branches and in market, were not more than half the usual size. We are not prejudiced against the Snyder, in fact we set out some more young plants ourselves this year, for still another trial. But we wish to prove our former assertion, that it is not *perfectly* hardy. And also to caution persons against investing heavily in any fruit before they have tested it thoroughly, or its hardiness has been fully proven in their locality.

Plant an Apple Orchard this Spring.

We want more apple orchards in all the older states. The old trees, once so bountiful, are bearing less, and dying every year. On many farms no successors are provided for. We have occasionally a surplus of apples, as in 1874, when the orchard does not pay much. But there is a compensation to the fruit-grower, even in these years of exceptional adundance. The cheapness of apples introduces them into many families, where they are generally used only as a luxury. They are so wholesome and enjoyable, that they become a necessity, and are more largely purchased in subsequent years, when they bring double prices. In 1874 apples sold for $1.50 per barrel. In 1875 they sold for four dollars a barrel. We know of a case in which a family laid in, in 1874, 16 barrels; in 1875, the price being so much higher, the same sum being allowed for apples, the supply was but six barrels. If apples can be raised at a dollar a barrel, and pay expenses, the farmer who furnished this family, made eight dollars in his trade of 1874, and eighteen the past season. Thrifty families soon become accustomed to apples, and they take their place with flour, meat, and butter, among the necessary family supplies, and the whole crop is taken, even in abundant years, at prices that pay something. This is what the fruit grower wants, steady paying prices for all that he can raise every year, rather than extravagant profits, which will induce everybody to rush into his specialty. Apples are, on the whole, as likely to be profitable as any fruit a farmer can invest in at the present time, with the prospect of making money out of them for the next thirty years. They keep better than almost any other fruit, and in all the northern half of the country, they can be had, in the fresh state, with very little difficulty, every day in the year. Our soil and climate are admirably adapted to this fruit. It grows in the greatest beauty and perfection, and American apples command very high prices in the English markets. They are already a profitable article of export, and this business has as substantial a basis for increase, as the export of American cheese to European markets. The idea that our climate has changed, is a fiction. Apples grow in our older states in as great perfection as they ever did, if the orchards are properly cared for. They will not grow so well on worn out pastures, as on virgin soil. But we find, to-day, on soils that are fed and cultivated, apple trees so vigorous and fruitful, that nothing more can be asked. Nor do we take any stock in the idea that the old varieties are running out. The Roxbury Russet has been in the country from very near its first settlement, and in the east, the trees are as vigorous and hardy, and the fruit as perfect as they ever were. As a long keeping standard variety, there is no better selection for this region. Plant an orchard this spring. Plant only standard varieties that are known to do well in your neighborhood, and let the varieties be few, and nine-tenths of them the long keepers. Late winter apples can be sold eight months in the year. They almost always bring extra prices in the spring. We know of farmers who have never lost faith in this crop, and are reaping golden harvests from orchards planted twenty years ago. First, plant an orchard. Second, take care of it. CONNECTICUT.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Home Topics.

BY FAITH ROCHESTER.

Prescribing for the Sick.

I have sometimes been called upon by neighbors to give some advice about the care of persons who were suffering from pains of some kind, and who hardly liked to summon a doctor. If those who come to me knew what medicine to give, or if they had some undoubted panacea in the house, they would not ask for my advice, I presume. But I never have any medicines, and never want any. Neither do I know much about particular diseases. There are a few things which every one should know about curing diseases—and the same rules apply generally to the prevention of disease. When I am called upon for help, I ask, "are the feet warm?"—and usually they are not. This, then, must be corrected as soon as possible. You can hardly trust an ignorant woman's report on this point, so common is it for women to go habitually with cold feet in the winter, calling them warm, perhaps, unless they actually ache with cold. Neither can you trust a sick child's report of its feet, and if you would do your best for the patient, feel of its feet yourself. Not only warm its feet, but *see that the whole body has a comfortable degree of warmth.* This is necessary whatever may be the disease. If the body, or any part of it, is hot and dry, cool it. Usually cloths wet with clean soft water are most available for this purpose. An equally important inquiry is concerning the state of the bowels. A Swede mother came to me one Tuesday afternoon, in great anxiety about her child, four or five years of age. I asked, "how are her bowels?"—"Well, I don't know," she answered, "for she has not had a passage of the bowels since Saturday!" I lent her my syringe, with instructions as to its use, for nothing but feverishness and pain could be expected while the waste matter of the system was retained in the body. This rule, "keep the bowels open," like the previous one in respect to a comfortable degree of warmth for the whole body, applies in *every case* of sickness, no matter what may be the disease.

I know I am only repeating what has been said editorially and by other contributors to this journal, when I say that medicine does not cure sick folks. It may give some assistance, but Nature herself works with all her might to prevent, and also to cure, sickness, or to restore to health any injured part of the body. We have only to work in harmony with her. For this reason we seek to maintain an equable circulation of the blood throughout the body by warming that which is too cool, and cooling that which is too warm. For this reason we seek to keep open every means of exit for the waste and poisonous matter which the body has to throw off constantly in its processes of repair and growth. This makes necessary not only an open condition of the bowels, but an open condition of the pores of the skin. Sweatings, or "sweats," are well in their place, when the pores are closed on account of cold, but a sick person's profuse perspiration ought to be followed by some kind of a bath, carefully given so as not to chill the patient, in order to wash away the effete matter which the sick body has poured, with the perspiration, through its innumerable pores. This should be done in a warm room, if possible, and in cool weather only a small part of the body should be exposed at once. When one arm has been washed and dried, the other may be bathed, and so on—a part at a time.

Improper eating seems to be the cause of much of the ailments for which I am called to prescribe. Of course the over-worked stomach ought to rest, and with it the whole body. But working people can not lie by on account of illness, if they have

strength to crawl about, and so they think they must "take something." There is a good deal in a name, and when people are in much pain, of course they want a "pain-killer"! Outside or inside, no matter!—kill the pain at once. So they seem to think, and in ignorance take anything which recommends itself as able to relieve their suffering. When our little girl pulled a heavy piece of iron from the table upon her foot, crushing it so that we thought she would be unable to use it for a long time, her suffering was extreme.

"We ought to have some 'pain-killer' in the house!" exclaimed a member of the family who was as ignorant of the component parts, and especial powers, of that medicine as I am myself.

"What for?" I asked, and he replied, "the child never can bear such pain long. It is horrible."

But we set to work with cold water, pouring it constantly upon the bruised part for about an hour. Relief began immediately, and the child was unwilling to have any cessation of the bath until the pain was all gone. It seemed almost a miracle to see that little girl running about on both feet in less than two hours after the accident, and never afterward to hear another word of complaint about the badly bruised foot. Nor was there ever afterward any hint in our house of the need of a "pain-killer" or other patent medicines. Vigorous rubbing is often better than water to relieve pain.

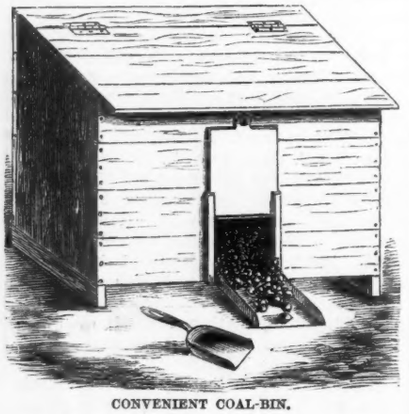
When the body is suffering on account of any obstruction, or injury, it is unfair to burden the stomach with unnecessary labor. Food easy of digestion should be selected, like well-cooked gruel, graham mush, or nice toast, dressed with sweet cream. Often an entire fast for one or two meals, with rest from labor, is the best thing for restoration to health. Most of us are too ignorant to attempt to treat a very sick person without the advice of a physician. Our neighbors thought us very presumptious when I was taken quite ill last winter, because we did not call a doctor. Indeed we were just on the point of doing so, in order to learn what was the matter with me, when we became sure that it was *pneumonia*, or lung-fever. We had no difficulty then in treating the case by simple nursing, using hot flannels or cool compresses, as instinct called for either to relieve pain. Medicines were advised by kind-hearted neighbors, but none were taken, nor even food, until the fever had abated and appetite returned. This little sickness of two or three weeks cost us not less than forty dollars in loss of time to my husband and myself, though there was no outlay for extra help or physician's attendance. So I am more sure than ever that sickness does not pay, and that it is a mother's duty to take care of herself as well as of her children.

Sunday Dinners Quickly Prepared.

A kind sister, helpfully inclined, writes me as follows: "I've had it on my mind for several weeks to write you something about Sunday dinners. You know when there is a family of five or six persons, more or less, and all want to go to the morning service, and stay to Sunday School, their appetites are pretty well sharpened by the time they get home, especially if there is a ride of two or three miles. I have experimented in various ways that we may have our dinner as soon as possible after getting home, or each one begins to help himself, which causes much confusion and spoils the meal. I find that by leaving the tea-kettle on the stove, and filled, with a little fire, the water is in a condition to boil quickly, and mush is soon prepared. In cold weather nothing is better than oyster soup, which requires but a few minutes cooking. A good meal is quickly prepared by having a chicken made ready overnight by dressing and stuffing, and then it is ready to put into the oven when the family sit down to breakfast. It requires little care, and is nicely browned by church time, and keeps warm in the oven until wanted for dinner. I find it a great help to have potatoes ready to warm over. Often meat is boiled or roasted on Saturday, which relishes well cold. A rice pudding, made without eggs, and left in the oven is nice with sugar and cream." It is easy, by taking thought, especially a day or two before, to so provide that Sunday shall be, not only to the family, but to the help a "day of rest."

A Bin for Coal.

An unfortunately too common manner of keeping fuel, whether coal or wood, by those who live in the country, is to have it in a pile out of doors, and unsheltered. In snowy weather the fuel is dug out from beneath a snow-drift, and in rainy weather it is brought in saturated with water, in either case making it very disagreeable and untidy in a well ordered kitchen. Indeed, to see a pile of fuel in this condition in the back yard, rather forcibly indicates that there is an untidy kitchen within doors. Fuel should always be under cover. Coal may be very well kept in a neat bin, which will still be neat, although made of rough materials. A packing-box of sufficient size, cut sloping at the top, and furnished with a lid, will make an excellent coal-bin; or it may be made of rough or dressed boards, and painted. It should be raised a few inches from the ground, by being placed upon stout posts, or a few bricks, and the top should be of such a hight that coal may be shoveled directly into it from a wagon-box. A sliding-door should be made in the front, with a small, sloping platform, from which to shovel up the coal which escapes when the door is lifted. The door should be kept closed when not in use, in order that coal may not be scattered about. If shed-room is scarce, the bin may be kept near the back door, but it would always be better to keep it, when possible, under

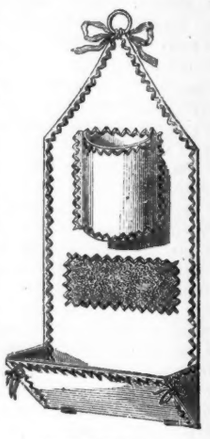


CONVENIENT COAL-BIN.

cover. The engraving shows the shape and proportions of a very convenient coal-bin. If wood or coal can not be reached without going out of doors, then the kitchen should be provided with a coal or wood box, as the case may be, and it should be made the especial business of some one, to see every morning that it contains a full day's supply.

A Convenient Match-Holder.

There is nothing in a house for which it is more desirable to have a proper place than matches. When one wants a match in the dark and has to hunt around for it, upsetting and breaking several things in the attempt, and then finally finds it, it is apt to be rubbed upon the first object that comes in the way, whether it be the hard finished or the papered wall, or the door or the window frame, and when an ugly scratch has been made, the burned stump of the match is very likely to be thrown upon the carpet. As a remedy for the annoyances attendant upon having matches "lying around loose," we suggest that a neat match-holder be made and hung in every room wherever matches may be needed in a hurry. They may be hung up in the kitchen, the dining-room, the parlors, halls, and every other room in the house, not forgetting even the cellar, and they should be regularly replenished and emptied of the stumps every sweeping day. We give here an illustration of a method of making a neat holder for matches. It may be made of stout card-board, cut into proper shape and bound with narrow ribbon. The pocket for the matches is made of a piece of the board curved and sewn on the frame with colored silk. A piece of sand-paper is glued below the pocket, and bordered around with ribbon, and this serves to rub the match upon. Beneath the sand-paper is a tray to hold the stumps. This is fastened to the frame by two hinges of narrow ribbon, and to the ends by pieces of ribbon which are tied in small bow-knots. By loosening these knots, the front of the tray falls down, and the burned ends are caught in the hand and removed. These holders may be made very ornamental, and for those who use gas, if made double or cylindrical, they may be hung beneath a chandelier, and the matches needed to light the gas will always be at hand. A dozen of match-holders would not be too much for comfort in almost any house.—[The above suggestion comes from a friend, to whom we are often indebted for household items; we would add that the furnishing stores have cast-iron boxes, that are better suited to the kitchen and such places.—ED.]



MATCH-HOLDER.

Making the Best of It.

BY AN OLD TRAVELER

The extension lounge in the February, together with other articles of home-made furniture published from time to time in former numbers of the *American Agriculturist*, bring to mind an experience of many years ago, when this was almost the only furniture that I saw, for some three years.

Some years "before the war" it came in the way of my duties to visit a great many of the military posts on the far western frontier, where civilization was left far to the rear, and in front were the savage tribes of Indians, or the scarcely less savage half-breed Mexicans. These "posts" were in some cases mud, (adobe), barracks; in others, rude structures of poles set upright and chinked in with mud, and quite rarely log or rude frame houses, but in all cases exceedingly rude quarters. In spite of the rough life to be encountered, it was often the case that officers' wives, (bless their devoted hearts), accompanied their husbands, and when there were two or three wives at a post, it was spoken of as "society." In going from post to post, and stopping at some a few days, and at others for weeks, I had a fair chance to observe this kind of life, and notice how even one woman exercised an influence not only over the officers, but the men, and how different the whole tone at a post where there lived but one woman, was from other posts where, as was often the case, there was none. The younger officers were less rude where there was a woman, and the common soldiers would fairly worship her, and try in every way to do something for the captain's or "luftenant's" wife, and be amply repaid by a pleasant word. I also noticed the different dispositions of these wives, and the ways in which they accepted their rude lot and adapted themselves to their changed style of living. In an evening call upon some, I would be first treated to a long apology for the miserable quarters; how differently they lived at Fortress Monroe, Newport Barracks, Washington, or some other post. Did I know so and so in Washington?—the whole conversation showing discontent. A visit to another officer's quarters showed the room fitted up with great neatness and comfort; the wife was so glad I had come, as I might tell her about some curious stones she had picked up near the post, and she had collected some globular forms of cactus for mantle ornaments; I must taste some preserves she had made from the wild currants that grow near the

creek; and did I think that radishes would grow there, for Lieut. — was so fond of them. This lady had quite fallen in with her new mode of life, and managed to find a daily pleasure in it, and though she could grace the society of the older posts, she found too many duties on the frontier to allow her time for repining, and there was so much to interest her in the present, that her conversation rarely run upon past pleasures. I am happy to say that the majority of the officers' wives on the frontier were of the last described class. The great distance of many of these posts from all ordinary routes of travel, made the transportation by wagons cost from 25 cents to $1.25 for every pound of material brought to them; furniture of most kinds was quite out of the question, yet rooms were often neatly, even handsomely furnished through the ingenuity of these excellent wives. We recollect a marked instance of this, in which Mrs. Col. W., with an admirable foresight, had all the effects they were to bring from "the states" packed in boxes of uniform sizes. Three of these boxes, laid one upon another, with their open tops outward, and properly curtained and draped, formed a useful bureau; others put upon legs and the edges covered with some proper material, made a "china closet," though the ware was mostly of tin, and the Col.'s books were thoughtfully sent out in boxes, which, placed one upon another, made as useful a book-case as need be. Lumber at all these posts is exceedingly rare, but these ingenious ladies would turn the boxes, barrels, and kegs from the commissary's and quartermaster's department to a great variety of uses, and what would otherwise go to waste, appeared as ottomans, foot-stools, and various other conveniences. I have seen most comfortable easy-chairs made from casks, and a lounge made with a pole frame-work, across which split barrel staves were nailed, to make a comfortable spring seat. All this was done where it was a matter of necessity, this or nothing; but there are many cases where the same ingenuity can construct household furniture from cheap materials which will answer all the uses of expensive articles, and save a considerable outlay.

Household Notes and Queries.

Under this head we propose to keep up a sort of "intelligence office" for housekeepers, where questions may be asked and answered; where short items may find a place and useful "scraps" may be saved.

Pies often have their juices cooked out; Mrs. J. A. Williams, of Wisconsin, prevents this by having some water handy, and when the pie is filled, she wets the edge of the lower crust, puts on the upper crust, and pinches the two together where they come in contact.

Keeping Eggs.—"J. L. T.," Middletown, Ohio, has kept eggs for the past 20 years thus: Paper is cut in pieces of the proper size, and each egg is wrapped up, the paper being folded closely around it and twisted firmly at the *large end;* the eggs are then packed in a vessel with the *small ends* down, and kept as cold as possible without freezing. The eggs packed in Sept. to Nov., keep until April.

Wanted, a good recipe for rye-bread. In our experience the trouble with rye and Indian bread is due to the difficulty of getting rye *meal;* that sold in the stores is bolted too fine; we cannot say how it is with bread of clear rye. *Another:* a recipe for ginger snaps, snaps that will *snap*, is asked for.

Tea Stains on linen are what Mrs. H. A. V. would like to remove, and she would also like to know how to use chloride of lime to remove mildew. The numerous inquiries that we have of late received as to removing stains from articles of clothing and furniture, and concerning the repair and renovation of various household articles is a good sign; it shows that our people are studying the art of saving, and this is a matter in which we shall gladly aid. In regard to stains in general, we had already prepared some notes on the subject, which we hope to give when there is room, but we answer this by itself. All fruit stains and all ordinary vegetable stains, including mildew, may be removed by the use of chloride of potash; this, (like chloride of lime), is not a proper chemical name, but a name by which it is known in the shops; it is also called Javelle water. It has the same bleaching qualities as chloride of lime, and is much preferable to that, as the lime makes the materials harsh. Wet the mildew and tea stains with this for a few minutes before they go into the wash; rinse thoroughly, and wash as usual.

Javelle Water is sold at most drug stores, but it is easily and much more cheaply made. Take 1 lb. chloride of lime, 2 lbs. pearlash, and sufficient water. Saleratus, (not soda), will answer, but not so well as pearlash. Put the chloride of lime in a jar with 1 gallon of water, adding the water gradually at first, and mashing the lumps with a stick to get all thoroughly mixed; stir thoroughly and let stand for a day or two; pour off the liquid from the sediment, no matter if it is a little cloudy; wash out the jar and return the liquid; dissolve the pearlash in hot water, about 3 pints, and add this to the liquid in the jar; let stand until clear, and pour off, keeping it in a bottle or a jug for use. A teacupful of this added to a boiler of cotton or linen goods, bleaches them finely. It should not be used too often, and then special care should be given to rinsing, or the materials may be weakened.

Restoring Gilt Picture Frames.—"M. P. B.," It is difficult to say unless we know what kind of a frame. Many frames called gilt, have no gold leaf on them; they are first covered with the vastly cheaper silver leaf, and then lacquered. Lacquer is a varnish made from light colored gums dissolved in alcohol and colored with tumeric. This laid on over the silver, gives it the color of gold. If the frames are really covered with gold-leaf, it will be better to have them regilded; if they are cheap frames, they can be improved by a coat of lacquer, first carefully removing all dust and specks.

The Uses of Buttermilk.

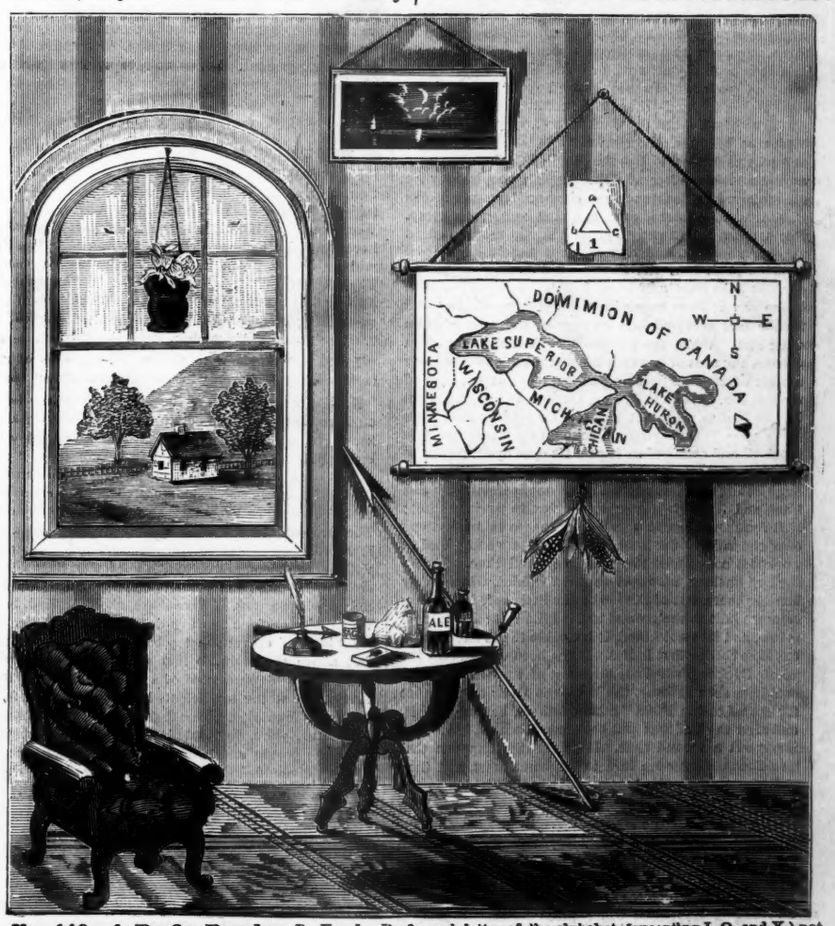
BY MISS A. D. WALKER, MORRIS CO., N. J.

In our farm-home we make great use of buttermilk, and the following recipes have been well tested. We often use fresh buttermilk in mixing bread, and find it increases the lightness and whiteness. Buckwheat cakes are not considered very wholesome, and we have almost discarded them.

Griddle Cakes are made with buttermilk, one quart; baking soda and salt, each, one even tablespoonful; one teacupful of Indian meal, and five of wheat flour. Cakes made in this way, will, if the rule is followed, be tender, light, and excellent. To make muffins we leave out the Indian meal, and bake in muffin rings. "What, muffins without eggs?" some will ask. Yes, and if you try them you will like them, as the buttermilk makes them very light and puffy.

Indian Cake, or pone, as it is sometimes called, makes a delightful breakfast dish. Our method is as follows: 1 quart of buttermilk, 4 teacupfuls of Indian meal, 2 of wheat flour, 4 tablespoonfuls of molasses, or brown sugar, 1 even tablespoonful each of soda and salt. Bake in a quick oven. This rule makes two handsome cakes. It is eaten warm, with butter. The same batter we prepare for muffins, makes excellent fritters, if fried in hot lard.

BOYS & GIRLS' COLUMNS.



No. 448.—A Prefix Puzzle.—*By Frank.* Prefix each letter of the alphabet, (excepting I, Q, and X,) not in regular order, to its required object in this picture, using no object or letter more than once, and obtain:

1. Property.
2. Used in chess.
3. To injure.
4. A kind of nut.
5. A fault.
6. A girdle.
7. Complete.
8. Cold.
9. A glimpse.
10. A discordant sound.
11. Exposed.
12. Layers.
13. A rapid current of water.
14. Limited.
15. Mode of treating.
16. Closed.
17. A common superlative.
18. A musical instrument.
19. A military command.
20. A flower.
21. A kind of boat.
22. An animal.
23. A story.

[Sue.

Answers to be sent to Aunt

The Doctor's Talks—About Trouble in a Bird's Nest.

"Birds in their little nests agree," says the song, which is often quoted when children are disposed to quarrel. It is generally true that the little things do agree in their nests, but it sometimes happens that they do not, and our picture, which was drawn by a lady in England, and which tells what she saw, shows that, sometimes at least, there may even be quarrelsome times in a bird's nest. You have probably all read or heard about the Cuckoo. Many of your child's stories and your songs, have come from England—the mother country—and many of you have heard about the Cuckoo, as a very early spring bird, who "Sings as she flies; she brings us good tidings, and tells us no lies."—But the English Cuckoo is a very unpleasant bird after all; the English people may be glad to hear its voice "cuck-oo—cuck-oo," because it tells them that the winter is over, and that spring has come. The Cuckoo as an early spring bird, is mentioned in very early history, and is even spoken of in the Bible. But though it is a well known bird, it is a very mean one. It very rarely, if ever, builds a nest of its own (some say it does sometimes build a nest), but the female bird goes and lays its eggs in the nest of some other bird. When the Cuckoo does this, she very often chooses the nest of a much smaller bird, and the poor mother of the nest goes on and hatches out the egg of the Cuckoo. When the young Cuckoo is hatched, then trouble begins. Birds in this case do not "in their little nests agree." The young Cuckoo, very soon after it is hatched, and even before it gets its eyes open, begins to feel that while the nest is large enough for one, it is not large enough for but one, and that one is itself. So the blind and featherless creature begins to work around; if it feels any eggs, it somehow manages to push them over the side of the nest; if it feels a young bird, it works its body under the poor thing, and then by backing and pushing, manages to get the bird, which really belongs there, out of the nest; the little soft featherless creature falls to the ground and is killed; or if the nest is low, and it is not killed, it is unable to get back again, but is so chilled that it dies. It has been denied that the young Cuckoo pushed the birds out of the nest, but several have seen it done, the lady who drew this picture for the "London Field," among others, having seen it, and after the bird was put back into the nest, have seen it put out a second time. It sometimes happens that two Cuckoos' eggs are laid in the same nest, and then they show no brotherly love, but the one which is the weakest must go overboard, leaving the stronger to have the nest all to itself, and of course all the food that the poor mother of the nest would have brought to her own young. "How mean," you will say, "I am glad we have no Cuckoos in this country."—But you would be too fast; we have Cuckoos here, but they build their own nests, and behave like most other birds. Still, we have a very common bird, which is not a Cuckoo at all, that has just the same ways, and instead of building a nest of its own, goes prowling about, and when it finds a chance, leaves its egg in the nest of some other bird. This bird is known as the Cowbird, Cow-Blackbird, and the Cow-Bunting; you must have often seen it in the spring, for it is found in small flocks in the pastures all over the country. The male bird is black, with its head and neck purplish-brown, while the female is of a grayish-brown, and lighter below. The female selects the nests of the smaller birds, such as the warblers, the sparrows, the small thrushes, and others, and deposits her egg when the proper owner of the nest is away. The egg of this bird is grayish-white, with small reddish dots all over the surface, and often there are blotches of brown at the larger end. If you find an egg of this kind in a nest, where there other and smaller eggs of another color, you will be safe in throwing this out as having no business there. If one of the other birds finds an egg of this kind in her nest, she is in great trouble, for she appears to know that it has no right to be there; some of the birds, finding the stranger egg in their nest, get together new building materials, sticks, hay, moss, or whatever it may be, and build another nest right over it. But it often happens that this is not done, and the mother of the nest sits upon the strange egg as well as her own. Now it happens that this Cowbird's egg hatches sooner than most other eggs, and the bird from it is not only larger than the others, but comes sooner, and can at once begin to push out the eggs, or birds, if there be any, and then have the whole nest to itself. It is said that while the owner of the nest tries to get rid of the strange egg, she will, if this is once hatched, give the young Cowbird all the care that she would have given her own. "It's just mean—that's what it is," you will say.—Do not be in a hurry to find fault with the works of the Creator. You must remember that even the most learned do not know everything, and those who have studied birds all their lives, find that they have yet much to learn, even about our common ones. It may be that when we come to learn all about this habit of the Cowbird, we shall find that there is a good reason why it does in this way, and perhaps think it is a beautiful and wonderful arrangement. Let us wait, says THE DOCTOR.

HOW A YOUNG CUCKOO BEHAVES.

Aunt Sue's Chats.

THE SEVEN WONDERS OF THE WORLD DESCRIBED.

MARY D.—Never "be ashamed to ask" for information, dear. I don't believe Mr. "Charlie" could have told you "out of his own head" what were "the Seven Wonders of the World," unless he had just happened to have learned all about them. They were—1. The Pyramids of Egypt; 2. The Hanging Gardens of Babylon; 3. The Temple of Diana at Ephesus; 4. The Statue of Jupiter in the Temple at Athens; 5. The Tomb of Mausolus, King of Caria; 6. The Colossus of Rhodes; and 7. The Pharos of Alexandria.

1. The Pyramids were the supposed tombs of monarchs. They are seventy in number, of different sizes.

2. The construction of the Hanging Gardens is variously ascribed to Queen Semiramis, and to Nebuchadnezzar—seven centuries later; yet still more than five centuries B. C.—who is said to have made them for the gratification of his Median queen, Amytis, because the Babylonian plain seemed dreary to her in comparison with the varied and romantic scenery of her native land. They are said to have formed a square, with an area of *four acres*, but rising in terraces curiously constructed with stone pillars, across which were placed stones covered with reeds and bitumen, and again with bricks united with cement. Above these, sheets of lead, to prevent moisture from flowing down; and, finally, a sufficient layer of earth; the top being raised three hundred feet above the plain, so that at a distance the whole presented the appearance of a pyramidal wooded hill. A reservoir at the top irrigated the gardens and fed the numerous fountains. These fountains, as well as banqueting-rooms, were distributed throughout the numerous terraces; groves and avenues of trees, and parterres of flowers, diversified the scene; whilst the view of the city and neighborhood was extensive and magnificent.

3. The Temple of Diana was originally built by Chersiphron, but after its destruction, by Herostratus, on the night when Alexander the Great was born (356 B. C.), was re-built by the inhabitants in a style of greater splendor than before, the very women contributing their ornaments to secure necessary funds. (Wasn't that a wonder?) Still, two hundred years elapsed before it was completed. It was the largest Greek temple ever constructed. Its length was 425 feet, its width 220 feet: the number of its columns 128, of which 36 were carved, and their hight 60 feet. It contained numberless statues and pictures, and was destroyed by the Goths in 260 A. D.

4. The statue of Jupiter in the Temple at Athens, was made of ivory and gold. It was the work of Phidias.

5. The Mausoleum (the tomb of Mausolus) was erected at Harlicarnassus by the disconsolate widow of Mausolus, Artemisia, (353 B. C.). It was described by Pliny and other ancient writers as late as the twelfth century, and was probably overthrown by an earthquake at some time during the two following centuries. It consisted of a basement, 126 by 100 feet, and 65 feet high, on which stood an Ionic colonnade, 28½ feet high, surmounted by a pyramid, rising in steps to a similar hight, and on the apex of which stood a group, about 14 feet high, of Mausolus and his wife (the supposed work of Scopas). The total hight given by Pliny is 140 feet.

6. The Colossus of Rhodes was a large human figure, made of metal, cast in separate pieces, and was completed 280 B. C. Some saying it was 90 feet, and others upwards of 105 feet high. It stood at the entrance of the harbor of Rhodes, but there is no authority for the statement that its legs extended over the mouth of the harbor. It was overthrown and broken to pieces by an earthquake 56 years after its erection, or B. C. 224. The fragments remained on the ground 896 years, until they were sold to a Jew of Emesa, who carried them away on nine hundred camels, A. D. 672; but what was done with the pieces I am unable to say.

7. The Pharos was a famous white marble tower 100 feet high, on the top of which fires were kept to serve as a light-house for the direction of mariners. It was erected on the Island of Pharos at Alexandria 280 B. C.

LILL writes:—"Dear Aunt Sue. Can you please tell me the author of the poem entitled the 'Golden Legend?' I thought it was written by Longfellow, but fail to find it among his works. Please publish this in your columns, for I know of several who would like to find this out."—It is Longfellow's; published in 1851, and may be found in any edition of his poems after that date.

Fig. 1.

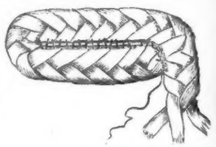


Fig. 2.

ALLIE S. W. has "more carpet-rags sewed together" than they need for a carpet, and asks me what she shall do with them. Allie is evidently a farmer's daughter, and doubtless knows twice as much about such matters as I do; but I would suggest braiding your surplus rags into a long strip (of three-strand braid), and making mats and iron-holders of them. We have a large, and really handsome door-mat made in that way; the strands are about as thick as your finger. Whether the mats are round or oblong in form (and I much prefer the latter), depends upon the way you commence sewing them together, as shown in figures 1 and 2. If you wish a round mat, commence sewing the braid together as in figure 1; but if you would make an oval one, start it as in fig. 2. Sew the edges of the braid firmly together with stout, waxed thread—continuously round and round until you have the mat as large as you require it. Figure 3 shows the round, and fig. 4 the oval mat, as they will look when finished.

Fig. 3.

Fig. 4.

T. F. W., says, "My brother has bet me ten cents that he can prove that a pig has three tails; you are so good at puzzles, I want you to tell me how he does it." I should like first to give you a little lecture on betting, but I suppose it wouldn't do any good. I often hear boys in the street getting loud and angry in their discussions, and finishing up with "I bet you a dollar I can!" when I don't suppose they own five cents in the world. Don't bet if you can avoid it. In the matter of the pig's tail, I presume it is a catch, (or syllogism) and can be proved in this way: no pig has two tails, one pig has one tail more than no pig, hence one pig must have three tails. And by that rule you can "prove" to your brother that an ox has four thousand horns.

H. L. P.—You "thought it would be nice to see my name in print," then say "please give none but the initials." Well, here are the latter. Thanks for the Cross-word, but I have so many dozens of cross-words and numerical enigmas waiting their turn to be published that I cannot promise you will ever see it in print.

Something about Nails.

A nail is one of those small things that we could not well spare, yet very few men who use them, know or think how they are made, or how they should be used. We think it is one of the things that every boy should know about, and it may interest the girls too, for they sometimes have to drive nails, and if they learn that there is a right and a wrong way, it will be all the better. Not very many years ago all the nails we used were made by hand, with hammers on anvils. Each one was beaten out slowly from a long, thin iron rod, by men, or women, who worked at an anvil, which had a small forge at its side, where the rod was heated. The red-hot end of the rod was beaten out to the proper shape, and was then laid across a small, sharp cutting-bar, fixed on the anvil, and by a smart blow from the hammer, the rod was nearly cut through at just the place to make the nail of the right length. The pointed piece was then put into a small hole in the anvil, made to fit it, and was broken off from the rod by a twist. The end of this little piece, which stuck up above the hole, was then beaten into the right shape for the head, by a few quick blows of the hammer, and the nail was finished.

Fig. 1.

A spring was then struck with the hammer, which jerked the still red-hot nail out of the hole, and it fell on to the floor, where each one helped to make up a very small pile in the course of a day's work. Just think how slow this must have been, and how many heatings, poundings, cuttings, twistings, and all that, it must take to make a pound of nails! Yet in this slow manner all the nails that were used years ago were made. Most of all the nails used in this country were made in England, where a great number of women used to work at nail-making, and more than that, these women had hundreds of boys and girls to help them. If we had now no other way of making nails than this, they would not be as cheap as they are. The nails we use are made by machines, which cut them from a plate of iron, and stamp the heads upon them very quickly. Did you ever visit a nail factory?—It is a very noisy place, for the clanging of the iron plates, as they are turned over and over, the craunching of the jaws, which cut off the nails from the plates, and clash of the dies, which form the heads, all going on at once from fifty or a hundred machines in one room, would prevent you from hearing a word that was said. Those who have become used to the noise, do not mind it, but you would only see the lips move, and could not hear a word. A nail machine is very small, but very strong, and is not much larger than the table of a sewing machine, or a small desk. The machines are mostly fed by boys, each of whom sits upon a high stool in front of his machine. At his right hand is a small bench, where he has a supply of pieces of iron plate, cut of a proper size for the sort of nails he is making. Watch the boy. You see that he takes one of the pieces of iron, which is shaped like that shown in figure 1, in a pair of pincers, which are kept closed tightly by an iron ring slipped over the handles; he lays the iron upon a block in front of him. Now notice the machine. At the end of the block a cutting-jaw works up and down very rapidly. As soon as the plate is put under the jaw —snip!—a narrow piece is cut off in an instant. The shape of the pieces cut off is shown in figure 1. It is there seen that these pieces are not of even width, but are wider at one end than at the other, but that two pieces laid together bring the cut straight again. But these pieces must be cut off so that the wider ends are all laid one way. To do this, the boy turns the plate over on the block, as soon as a piece has been cut off, and this turning has to be done as quickly as the cutting-jaw comes down, which is quicker than one can easily count. But these pieces shown in figure 2 are not yet nails. As each piece is cut off, it is seized by a pair of jaws, and held, while a die at the side gives it one single blow upon the wide end, and forms the head. As soon as this is done, the jaws open, and drop the nail into a tray, from which it slides into a box under the boy's feet, and as soon as one nail is let go, the jaws take hold of another piece. All these motions of the machine, and the boy who feeds it, are made so nearly together, that one who stands by, can notice no difference in the time when each is done. The nails, you will see, are made very rapidly, 200 or 300 in a minute; it is very wonderful, to see them drop out all finished. A boy we knew went to visit a nail factory, and when asked what he saw said, "A big machine that kept biting off pieces of iron, and spitting out nails." In some factories the plates are turned by the machine itself, and all the boy has to do, is to put fresh plates in the pincers, when the others are used up. All sizes of nails are made in this manner, from the large 20-penny or 40-penny spikes, used in building the frames of houses, to the carpet-tack, or the "sprigs," used in making children's shoes. If you examine a cut nail, you will see the sides where it is cut off. You will also notice that the nail tapers from the head to the point, and on this account there is a right way and a wrong way to use it. If the nail is driven into the edge of a board, with the cut sides across the grain, as shown in figure 3, the fibers of the wood are separated, and the board will split; or, if the nail happens to go in, it can be drawn out very easily. But if the nail is driven in with the cut sides in a line with the grain, as in figure 4, the fibers of the wood are broken and bent down, and the board does not split. If the nail is drawn out of the board, the bent fibers are drawn up with it, and hold the nail so firmly that it is not easily pulled out. So then, the way to make a nail hold fast, is to see that is driven in the right way.

Fig. 2.

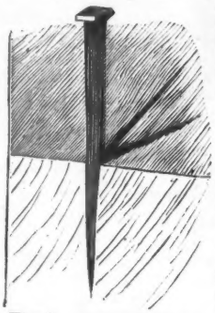


Fig. 3.—WRONG WAY TO DRIVE A NAIL.

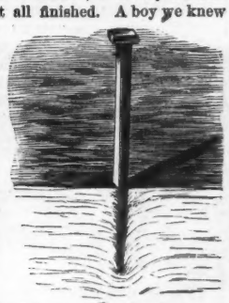


Fig. 4.—RIGHT WAY TO DRIVE A NAIL.

If some one was to ask you what is a 20-penny or a 10-penny nail, few of you would know what to say. These are the names by which we know one size from another. A shingle nail is a 3-penny; a fence nail is an 8-penny, and so on up to the very large 40-penny ones. But how came these names to be used? When nails were made by hand, those who made them were paid so much a thousand for making them. For small nails, 3 pence, (English money), was paid, and for the larger ones, 8 pence, 10 pence, and so on, according to the size. These nails then became known as 3-penny, 8-penny, or 10-penny, and we know them by the same names still, although they are not made so now. Cut nails are brittle, and when bent will break, but if you should want to bend or clench them, all you have to do is to heat them red hot and leave them to cool slowly in some hot ashes, or some of the black dust of a blacksmith's forge. This is what is called "annealing," and makes them tough.

Aunt Sue's Puzzle-Box.

BISECTED EASTERN CITIES.

1. Very angry and to deliver. 2. Contest between nations and a cutting instrument. 3. Harbors, and a part of the body. 4. Part of a tavern and human beings. 5. A fruit and a pile of grain in the field. 6. Water impregnated with alkali, and a home of wild beasts. 7. A vessel and a weight. 8. A sack, and a familiar name for a certain relative. ISOLA.

DOUBLE ACROSTIC.

The initials name one of the United States, and the finals a Territory.

1. An American river. 2. A town in New Zealand, 3. One of the United States. 4. A European Cape. 5. A river of Spain. ITALIAN BOY.

PI.

Frhitt si trebte hant na auntiny.

CROSS WORD.

My first is in brown but not in black,
My next is in loss but not in lack,
My third is in horse but not in cow,
My fourth is in yet but not in now,
My fifth is in shoe but not in boot,
My sixth is in rifle but not in shoot,
My seventh is in rain but not in snow,
My eight is in yield but not in flow,
My ninth is in blow but not in tap,
My tenth is in bed but not in nap,
My whole is a town you may find on the map.
M. JENNIE H.

NUMERICAL ENIGMA.

I am composed of 33 letters:
My 1, is a bird.
My 2, 3, 26, 5, is hoary.
My 6, 7, 8, 9, is a bundle or bale.
My 10, 11, is a pronoun.
My 12, 24, 14, is a case or receptacle.
My 15, 30, 32, 18, denotes nearness.
My 19, 16, 21, 4, is a prime number.
My 23, 13, 25, 22, 27, represents a number which occurs twice in twenty-four hours.
My 28, 29, 20, 31, 17, 33, is a covering.
My whole is a sentence that contains every letter of the alphabet. ALPHA BETA.

SQUARE WORD.

1. An instrument of music. 2. The exterior of seed. 3. A plant found in the southern states. 4. What's embodied when you plead. SPHINX.

ANSWERS TO PUZZLES IN THE JANUARY NUMBER.

DOUBLE ACROSTIC.—W—indha—M Wilson, Moskwa.
I— ny —O
L— uca —S
S— uffol —K
O—gema—W
N—eshib—A

CHARADE.—Rainbow.

CONCEALED VEGETABLES.—1. Tomato. 2. Radish. 3. Potato. 4. Bean. 5. Spinach. 6. Onion.

RHYMING ANSWERS.—1. Tin. 2. Linn. 3. Kin. 4. Pin. 5. Fin. 6. Bin. 7. Shin. 8. Din. 9. Sin.

CROSS WORD.—Florida.

TRANSPOSITIONS.—Reed, deer.

NUMERICAL ENIGMA.—Hearth and Home.

PI.—That Nature gives her handmaid, Art,
The themes of sweet discoursing;
The tender Idyls of the heart,
In every tongue rehearsing.

Thanks for letters, puzzles, etc., to Cecilia, T. F. D., Frank Nichols, H. W. Moore, Myra A. H., Isola, Carrie D. A., Ronkonkoma, Mary.

ANSWERS TO THE GEOGRAPHICAL REBUS.

1. Grampion Hills. 2. Newcastle. 3. Poland. 4. West Indies. 5. Persia. 6. Manchester. 7. Spain. 8. Canton City. 9. Turkey. 10. Cambridge. 11. Hayti. 12. Borneo. 13. Gibralter. 14. Buffalo. 15. Tom Bigbee river. 16. Milan. 17. Shanghai. 18. Baltimore. 19. Lyons. 20. United States.

So many have sent correct answers to this rebus, that the editors say that they cannot afford the room to publish their names; they are so crowded.

Send communications intended for Aunt Sue, to Box 111, *P. O., Brooklyn, N. Y.*, and *not* to 245 Broadway.

The Great Clam-Bake.

Fanny and Ransom and Will sat on the edge of the piazza, one summer afternoon, all three feeling very cross. The fact was, they could not think of anything to do, and that, you know, always makes little folks unhappy. Fanny would not so much as look at poor Major who was pawing and growling over a stick, and looking up now and then to see if she would not join the fun. She even pulled her big sun-hat over her eyes, so that she might not see him, and was just about to say something cross when Ransom exclaimed: "Let's go a'fishing!"...."Fishing!" said Will. "Where? in the brook?" And Fanny forgot to be cross, and pushed her hat up to listen...."Brook! No, that's no fun, the fish are so little there. We can fish off the dock."...."Down at the river? But mother won't let us," cried Fanny...."We needn't tell her," said Will, "she won't care as long as we don't go with the Simpson boys."...."She might," said Fanny, doubtfully...."Oh, come on!" cried Ransom, "what are you afraid of? I won't let you get drowned."...."I'm not afraid of being drowned," said Fanny. "Come, let's get the fishing rods and lines."

Fanny loved her mother, and did not wish to be disobedient, but their mamma had never positively forbidden their going to the dock, and it would be such fun!

Just then Major gave a short bark, and ran around the corner of the house. Of course, all the children ran after him, wondering what he could have seen, but nobody was there, and they concluded it was only one of Major's capers. All seemed quiet; mamma was upstairs busy in her room, the cook scrubbing the kitchen, and James—no one knew where he was—at the stable, probably. So the children went very quietly, got their rods and lines, and keeping out of sight as much as possible, started off through the long grass of the orchard for the river road. But they had gone only a little way before they heard mamma calling: "Children, children, come back to the house."... There was no help for it; so back they went, very slowly, for it was up-hill, and besides they didn't want to go back...."Where were you going," she asked, as they came into her room...."Fishing," said Ransom, not very boldly...."Not to the river!" exclaimed his mother. The children looked guilty, but said nothing. "Now I am really grieved," said mamma sadly. "I did not think you *could* do what you know would displease me. I could hardly believe it when James told me."...."James!" cried Will, "how did *he* know?"...."He must have been listening when Major barked that time," said Fanny...."Mean, horrid thing!" exclaimed Ransom, indignantly...."Children," said their mother, "if you had been talking of what was right, you would not have cared if you were overheard. You have yourselves to blame, not James. Now I shall take away your fishing rods, as you cannot be trusted with them, and keep them until I think you can obey my wishes."

The children went down-stairs very soberly, and seated themselves again on the piazza.

"I think James is just as mean as he can be; I hate him!" cried Ransom, his black eyes flashing...."He always spoils our fun," said Will, in a choked voice, while large tears rolled down his cheeks ...Major came up to the little fellow, wagging his tail in sympathy, and was just going to lick his face, when the grating of

wheels was heard. At that sound Major left everything, and ran down the road, barking with all his might.

"It's the fish-man," said Fanny, as a queer-looking wagon came round the corner of the house, and stopped at the kitchen door.

Now fish-men are rather an odd set, as a rule, but of all fish-men this was the oddest. He was a short, bow-legged little man, and wore blue army-trousers, and a very long, light-brown coat, which hung on him like a bag. His face was covered with tangled gray whiskers, and his head with tangled gray hair, some of which stuck up through a hole in the crown of his old straw-hat. But the fish-man was not near so queer as his horse. This animal had a body very much like the boiler of a steam-engine mounted on legs, so short and thick that they looked much like those of a piano, but much more crooked. These legs seemed to be crooked in all ways, and made the poor creature's feet turn inward like a duck's. This old horse had a very long, thin neck, and an immense head, which he always hung very low, as though he were ashamed of himself. The two boys and their sister forgot their grief in examining the fish-man's cart. There at one end was a great lot of clams. Now, Fanny was very fond of clams, and she no sooner saw them than a bright idea popped into her little head..... "Boys," she said, "let's have a clam-bake! We'll ask the fish-man for a clam; you ask him, Ransom." ...."All right," said Ransom. The good-natured fish-man readily gave the clam, and three children started off in glee with their gift and a couple of matches....."We'll go up to the hill-orchard, and make a fire in the stone-fence there," said Ransom....."There's James coming from the stable, let's ask him to go with us," said Fanny...."No, I won't! Mean fellow, I shan't ask him to our clam-bake!" said Ransom. ...."I won't play if he comes," added Will, spitefully...."Well, we won't ask him," said Fanny, as she looked at the one clam, and remembered there might not be enough to go around. So these three children, with anger in their hearts, went up to the hill-orchard, and having selected a hole in the stone-wall where it would not be dangerous to build a fire, they gathered dry leaves and sticks, and placed the clam on them, covering it with more leaves, and then Ransom lighted the fire, and all stood round to watch.

"Don't it smell good?" asked Will, hungrily, as the heat made the clam open and spill some of the juice with a hissing sound. Suddenly there was a louder hiss, and what was the children's horror to see coming out of the wall, a small black head, followed by a long, black body.

"A snake!" shrieked Will, as the creature opened its mouth and thrust its forked tongue at him threateningly. The clam and clam-bake were both forgotten, as the terrified children rushed down the hill to the house, and up to their mother's room.

"Oh, ma!" cried Fanny, all out of breath, "we've seen a snake! It came right out at us just as we were having a clam-bake!"...."Tell me about it, Ransom," said their mother, and Ransom gave her the story.

"Why do you think the snake came out just then?" she asked, when he had finished his story... "Perhaps it was sent to punish us for not asking James," said Fanny, who had a very tender conscience ..."Maybe it was," said Will, getting close to his mother with a very scared face...."No one spoiled your pleasure this afternoon but yourselves," said mamma. "You first took your own way even when you knew it would grieve me, and then, because your hearts were full of anger toward your brother. If you had asked James to go with you, I am sure he would have driven away the snake, and you might have had the clam-bake after all." "Let's go and ask him to play with us," said Fanny, penitently, to which her brothers agreed. The children did not soon forget that day, and when one was beginning to be cross, the others would cry out "snake," and they would all laugh at the way they lost their feast of one clam.

LITTLE MAY IN GRANDMOTHER'S CHAIR.

What Little May Thought.

Little Mary—Little May they called her, when she was good, and Little Mischief when she was troublesome—was tired. She had dressed up her dolls, she had put her little baby-house in order, she had played with the kitten until the poor thing was so teased that it ran away and hid from her, and here she was with nothing to do and no one to play with. Ah! here was grandmother's chair! Good grandmother had gone to take her afternoon nap, and in a minute the little girl was in the chair. How large it seemed. "I wonder if grandma was ever so small as I," she thought, "and shall I ever be so large as grandma?" Here was the cap, she must try that on. It was ever so much too large. "I wonder why grandma wears a cap? But I can't look like her unless I put on her spectacles."—She put on the glasses, but found that she could not see anything, so she took them of again, and wondered why old people wore such things. Then grandma's hymn-book too, had such large letters, why was that? Little May's mother, finding the house so quiet, wondered where the lively girl could be, and at last found her in grandma's chair, not doing any mischief, as she had expected to find her, but for once very quiet, and thinking about something. Little May then told her mother what she had been thinking about, and her mother took her on her lap, and told her that grandma, and all old people, were once frolicking children; that all little girls and little boys, if they lived, would become like grandma and grandpa. When they get old, their bodies begin to wear out, they can not walk so well, their eyes often need to be helped by glasses, even to read large print like that in grandma's book; their hair gets thin, and they wear caps. "How horrible," said May, "I hope I may never grow old."—"Do not say so, my child," answered her mother, "your wishes will have nothing to do with it; if God spares your life, you will one day become old like grandma, and she is not horrible, is she."—"Horrible! why mama, she is just the dearest, sweetest grandmother that ever was, I would not mind it if I could be such a darling old grandmother as she is."—"Do you love her any the less because her eyes need glasses, and because she has to sit most of the time in her big chair."—"Not a bit, because I can find her needle when she drops it, and bring her things that she asks for, and she tells me stories of when she was a little girl, and puts her arm around me when I am tired, and sings one of her little hymns, and I feel so rested. If she couldn't see at all, and couldn't walk, I should love her just the same."—"You begin to see now," said the mother, "what you will learn better when you get older, that it is not the bodies of those we love that are so dear to us, but the spirit that moves them, and if the body grows old, and the heart or soul remains sweet and lovely, like grandma's, there is nothing to dread in growing old. You can see when grandma smiles, the light of love shining through her wrinkles, and her dear old eyes, which see so poorly, are bright with this light, which makes us all happy."—And little May very often thought of this.

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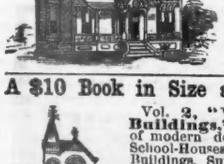

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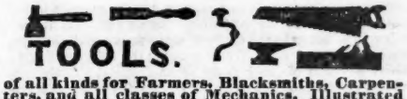

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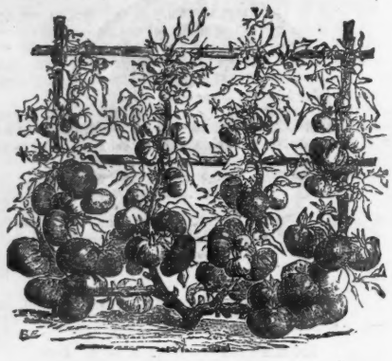

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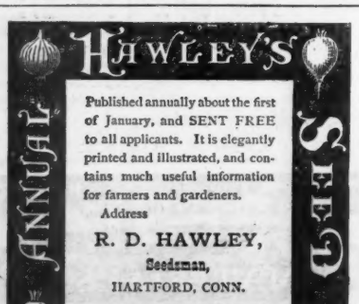

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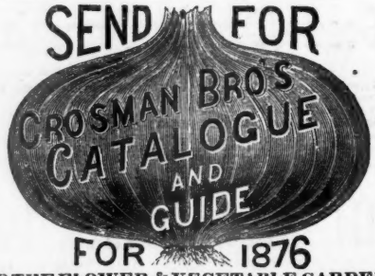

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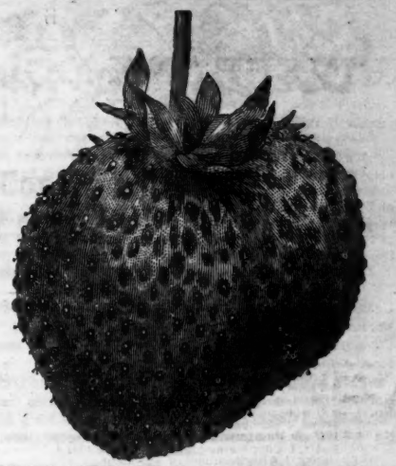

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TILLINGHAST BROTHERS,
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The Victor Potato.

Yields 500 Bushels per acre. Cooks white as snow. Testimonials furnished.

Sent post-paid, Two lbs., whole potatoes, 75 cts.; 75 eyes, $1; 150 eyes, $1.50; by express or freight, paid by purchaser, one peck, $2.00; one bushel, $5.00; one bbl., $10. Discount to Granges. Address all orders to

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CHOICE SEED POTATOES. 100 bbls. Snowflake potatoes, the finest potatoes grown. 3 lbs. by mail, $1.00; $4.50 per bbl., by freight; 5 bbls., $4.00 per bbl. Alpha, Eureka, Early Paragon, 3 lbs., post-paid, $1.00; per bbl., $5.00. All other var. at lowest market price. Send for price list, and order at once. Seed Stocks received of B. K. Bliss & Sons, and warranted Genuine. Address

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COLD FRAME PLANTS 200,000 Early Wakefield Cabbage Plants, 75 cents per 100; $6.00 per 1,000; packed so as to keep a week, and shipped by Express anywhere. All kinds of vegetable plants in season.

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The varieties noted below are the best that can be selected and grown, the same stock which we supply largely to Philadelphia and other market gardeners. For other varieties send for Dreer's Farmers' and Gardeners' Price List, mailed free.

BEET—Bastian's Perfection Extra Early Red Turnip. The earliest and most profitable, per lb., $1.65.

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The above mailed at prices quoted.

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Roses a specialty—all the finest sorts.
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FRUIT TREES AND SMALL FRUIT. A large stock of Apple, Pear, Peach, Cherry and Orange Quince. Also Raspberry, Blackberry and Strawberry plants. Apple grafts low. Agents wanted. Price List free.

Address **JOHNSTON'S NURSERY,** Palmyra, N. Y.

TREES 500,000 Fruit, 250,000 Evergreens, 500,000 Greenhouse, Bedding Plants, &c.
Four Catalogues Free. 224 Year. 400 Acres. 12 Greenhouses.
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SPRING **Price List,** per doz., 100, and 1000, of **Trees and Plants,** including a select list of **Specialties and Novelties,** FREE to all. Beautiful new Ornamental Catalogue, 10 cts. Fruit Catalogue 6 cts. Free to Customers. Address

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PEACH TREES.—Handsome stock of best new and old sorts, with general assortment of hardy fruit and ornamental trees, flowering shrubs, vines, small fruits, &c. New price list free.

EDWIN ALLEN,
New Brunswick Nurseries, N. J.

PEACH TREES, of best varieties; Norway Spruce and American Arbor Vitæs, several sizes; Mammoth Cluster and Brandywine Raspberry; Cherry Currants; 2 yr. Concord Grape Vines; Strawberry Plants; and a general Nursery stock at greatly reduced rates. Satisfaction guaranteed. For prices, address, **DAVID BAIRD,** Manalapan, N. J.

PEACH TREES.

The largest stock in the country. Other stock in full supply.—Earliest and promptest shipments.

HEIKES NURSERIES CO., Dayton, O.

A GENERAL ASSORTMENT OF PEACH TREES, at $3 to $5 per 100, or $20 to $40 per M. Wilson's Early Blackberry Plants, at $15 per M.

R. S. JOHNSTON, Stockley, Del.

PRIME FRESH APPLE SEED, for sale at $6 per bushel. **E. P. CLARK, Dansville, N. Y.**

E. P. ROE,

In preparing his **Manual** *on the* **Culture** *of* **Small Fruits,** *has been led to* **double** *its size, making it* **full** *and* **complete** *for the* **practical** *purposes of* **garden** *and* **field** *cultivation. It has also been published in very* **handsome** *form. This has increased the cost. It will be mailed on the receipt of price—***50 cts.**

Send for circular and price list of plants.

Address **E. P. ROE,**
Cornwall-on-the-Hudson, Orange Co., N. Y.

FREE The **FRUIT RECORDER** for *March* is especially valuable to the orchardist, tree agent, and planter. A copy **free** to all applicants.

Address **A. M. PURDY,**
Rochester, N. Y.

Try Canada Seeds. Grown by myself. Seeds of the leading and most approved varieties. (Send for Catalogue.) Address JOHN F. OTWELL, Seed Grower and Gardener, Drawer F., St. Marys, Ont., Canada.

ONION SEED From finest selected stock only. My own growing, warranted first-class in every respect. White Globe Onion, $2.50 per lb. Yellow Danvers, $2.00 per lb. Red Globe, $1.50 per lb. Sent post-paid by mail.

Address **E. B. JENNINGS,** Southport, Conn.

HUDSON RIVER FRUIT GARDENS.—Descriptive price lists now ready. Many novelties for this spring. **Star** and **Monarch of the West** Strawberry Plants. Wilson's Albany, $25 per 10,000. **Highland Hardy,** Ganargua, Norwood, and other Raspberries. Blackberries, Currants, Vines, Fruit Trees, &c. Prices very low. Also **Berry Baskets**—new styles.

R. H. HAINES, Malden-on-Hudson, N. Y.

IF you want Blackberries, plant the **Dorchester.** Early, hardy, productive. The best of all. I will sell at $7 per M. Wilson Strawberries, $2 per M. Raspberries and other stock low. **S. T. DUFFELL,** Yardville, New Jersey.

John Saul's Catalogue of New, Rare and Beautiful Plants

For Spring of 1876, will be ready in February, with a colored Plate—Many beautiful new plants are offered—all at very low rates—Free to all my customers, to others price 25 cts. A plain copy to all applicants free.

WASHINGTON, D. C.

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containing a great variety of Items, including many good Hints and Suggestions which we threw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 87.

Rape.—"B. F. H.," Suffolk Co., N. Y. Rape will not ripen its seed if sown late in the season until early the second year. It is similar in its habits to the turnip, although it has not a thickened or bulbous root.

Southern Minnesota.—"Young Farmer," Newburgh, N. Y. Southern Minnesota is a spring wheat country, and the best quality of grain is produced there. There is no desirable government land left, but plenty of railroad land can be bought from $5 to $10 per acre. It is a fine, open, prairie country without timber, with good water and soil, and with healthful, agreeable climate, though sometimes cold enough in the winter.

Hungarian Grass.—"J. M. B." Hungarian Grass and Hungarian or German Millet, are much alike, except in the form of the head. They are annual plants, and must be sown just as oats are. A peck of seed is sufficient for an acre. It is usually sown in June and cut in August, before the seed is ripe. When ripe it makes coarse hay, and is somewhat indigestible.

The Cheapest Method of Reducing Bones.—"R. S.," Hancock Co., W. Va. The cheapest way of rendering bones soluble, is by treatment with sulphuric acid, but it is not a method that we should advise for those persons who are unused to work with such a dangerous substance. If the bones are packed in layers, in a pit with fresh wood-ashes, and kept moist for two or three months, they will become soft, and may be reduced to powder easily.

Making Butter from Milk.—"A. F.," Bruce, Ontario. There is no difficulty whatever, in churning butter from new milk. A longer time is required than in churning the cream—that is all. In some dairies this is always followed, the milk being churned as soon as cool. Very rich Jersey milk, of which one-third may be cream, may be churned into butter more readily than the poorer milk of ordinary cows.

Where Mules are to be Procured.—"W.," Union Co., N. J. The best places to purchase mules, are middle Tennessee, Kentucky, southern Indiana, and Missouri. The whole country is chiefly supplied from these localities.

Making Candles.—"T. L.," Baltimore Co., Md. Tallow from the kidney fat of an ox, is too hard for candles. It should be softened by mixing 1 lb. of lard with every 12 lbs. of tallow. Some mix one pound of finely powdered alum, and 4 ounces of beeswax, with 12 pounds of tallow, the whole being stirred together until cold. This is then melted and poured into the molds, and the candles are cooled slowly. If cooled too quickly, the candles will crack and fall to pieces.

The Forms of Corn-Cribs.—"H. S.," Baltimore. Corn houses are made with sides sloping outwards, wider at the top than at the bottom, that the sides may shed rain easily. This is the only advantage. They may be made with perpendicular sides that will shed water perfectly, if that form is desired. A flat stone or broad piece of plank, will make a "rat-guard" as effectively as an inverted tin pan, and will be more durable. The sloping sides of the pan, however, afford no standing room for vermin, and may therefore be used with lower posts, and nearer to other buildings or fences with safety, than the flat cap.

Purchase of Ayrshire Cattle.—Mr. Jos. F. Brown, of Providence, R. I., sends us a list of Ayrshire cattle, purchased in his vicinity by Mr. Peter Coutts, of Santa Clara Co., Cal., as follows: from the Hillside herd of Mr. J. F. Brown, the 2-year-old heifers, Floy Douglas, 2nd, and Linda, 2nd; the yearling heifers, Floy Douglas, 3d, Linda, 3d, and Ethel Douglas, 3d, and calf Floy Douglas, 4th, price of the lot $2,500. From the herd of Hon. E. D. Pierce, Maggie Douglas, 3 years old; Hope Douglas, and Linda Douglas, heifers, for $1,000. From H. G. Russell, Young Stella, Nydia, and Mariam, three 3-year-olds, for $800. From Wm. P. Vaughan, 4-year-old cow, Esther, and yearling Brendita, for $650. From O. Brown, two yearling heifers, for $600; from C. & S. Harris, a 4-year-old cow, $300, and from L. H. Wood, a yearling heifer for $200. All the 3-year-olds and yearlings were sired by Prince Edward, of the Hillside herd.

"Science Applied to Farming," Correspondence.

CORN AND COBS AS FOOD.—"S. B. B.," Concord, Mass. Few reliable analyses of American corn, and none of cobs have, to my knowledge, been made. Analyses of four American varieties are given below, with one of European cobs. (The sugar, starch, gum, and cellulose or fiber, are carbo-hydrates).

100 lbs. Corn contain	Early Dutton Corn.	Common Yellow Corn.	King Philip Corn.	Stowell's Evergreen Sweet Corn.	Corn Cobs.
	lbs.	lbs.	lbs.	lbs.	lbs.
Water	8.09	10.52	9.79	10.86	14.0
Albuminoids	9.62	9.72	11.97	11.10	1.4
Sugar	2.00	4.78	3.05	11.64	
Gum	4.22	2.36	4.80	4.64	42.6
Starch	65.40	64.49	62.23	49.58	
Fat or Oil	5.67	4.42	4.45	7.68	1.4
Cellulose	2.63	2.40	2.21	2.63	37.8
Ash	1.33	1.31	1.60	1.89	2.8
	100.00	100.00	100.00	100.00	100.0

The sweet corn is especially rich in sugar and oil. All the varieties of corn contain very little crude fiber, and considerable digestible substance. Cobs, on the other hand, are very poor in albuminoids, and fats, and contain a great deal of fiber, and are comparatively indigestible. They furnish some nutritive material, however, and when finely ground, and mixed with concentrated, nitrogenous foods, are not without value as fodder. Corn-meal is a very concentrated and easily digestible food. Although it contains comparatively little of albuminoids, which are the most valuable constituents of foods, and a good deal of carbo-hydrates, which are less so, it is very rich in fatty or oily substances, and these have a very high nutritive value. A number of experiments, cited elsewhere, have shown that an excess of carbo-hydrates in concentrated foods, decreases the digestion of hay, clover, and other coarse foods. The oily substance, on the other hand, do not appear to have such an unfavorable effect. Indeed, it has been strongly urged that they are positive aids to the digestion, though this is hardly proven. It is, at any rate, evident that the results of accurate scientific observation are fully in accord with the common impression, that corn-meal is one of our most valuable foods. And American farmers possess a great advantage over their European competitors, in having so rich, useful, and cheap a fodder.

HUNGARIAN GRASS.—"D. S. H.," Clio, Mich., "A. B. T.," Columbia, Conn., and others. I know of no analyses of Hungarian grass at successive periods of growth. We have some specimens at our Experiment Station, awaiting investigation, of which results will be given in due time. The fact is, that very few analyses of our American fodder materials have been made, though they are much needed, and some are now in progress.

BREWER'S GRAINS AND MALT-SPROUTS.—"H. C. B.," Freeport, Ill. The "refuse grains after brewing" or "malt" you speak of buying at the breweries, are the "brewer's grains" of our table 21, in Jan. No., p. 10. The grain is sprouted in malting, and the "malt-sprouts" of the table are these sprouts separated from the grain.

BOG-HAY AS FOOD FOR STOCK.—Mr. A. B. Allen, the original founder of the *American Agriculturist*, in 1842, confirms from his own experience, the views set forth in our articles in January and February, on the feeding value of salt-marsh and bog hays. Referring to the statement that 207 lbs. of average cotton-seed meal, costing, say $5.34, would make a ton of early cut bog-hay, of average composition, about equal in nutritive value to a ton of the best upland hay, he says, "Now the latter is worth $40 per ton, on my farm at Tom's River, N. J., while the former, cut from my own meadows, costs me not over $5.00—difference I save is $35.00. I suspected this some time ago, and in the autumn of 1874, commenced feeding my bog-hay, and I don't see but that the cows give just as much milk, and make just as much butter, and that the horses look as well and do as much work, and with the same ease as when fed good upland hay. But I have lessened the quantity of cotton-seed meal given above, and substitute for this, a mixture of wheat bran and Indian meal—these three costing only as much as the cotton-seed alone. I find it better to vary the feed. Thus, you see, that like the Mr. W. referred to, I also corroborate the German experiments." Mr. Allen likewise fully endorses the view of Mr. Harris, as to the high value of corn-meal for mixing with coarse foods.

HOW TO GET GOOD FERTILIZERS.—A. Deakyne, New Castle Co., Del., writes: "I am a farmer, and as such, am agent for a club to buy superphosphates. Can you assist me in getting analyses made by several varieties used among us, so that we may know the relative value of each? . . . We don't want it to cost too much. Please give me as much information as you can in regard to it. "H. M. B.," Mass., "E. N. P.," Vt., "G. B.," Md., and several others make similar inquiries. Farmers in Connecticut can have such work done at little or no cost, as appears from the following circular, which has been extensively distributed in that state and elsewhere:

THE CONNECTICUT AGRICULTURAL EXPERIMENT STATION.

Analysis of Fertilizers.—This Station, established by the last General Assembly, is prepared, in addition to scientific researches of a more abstract character, to execute analyses of fertilizers at the Chemical Laboratory of the Wesleyan University at Middletown, Conn.——As this work is paid for in large part from public funds, those analyses which are of public interest, will be performed gratuitously. Preference will be given to articles furnished by Farmer's Clubs or Agricultural Societies, and to those whose novelty, importance, or extensive sale, give them special interest to the farmers of the state. Where duplicates of the same brand, equally well selected and authenticated, are received, the Director will select from them for analysis at his discretion. The results of analyses will be sent directly to the party furnishing the sample. They will also, where gratuitous, be held at the service of the Station and of the Board of Agriculture for publication, and for general use. For analyses made in the interest of private individuals, the latter will be charged a moderate fee, and will entirely control the results.——It is plainly for the interest of both dealer and consumer, that fertilizers should be bought and sold upon the basis of their actual value, as determined by their composition. To further such a regulation of the trade in commercial fertilizers, arrangements will be made with those dealers, who wish to place their stock under the supervision of the Station, whereby their wares will be inspected, samples taken for analysis, and results of same reported, under the authority of the Director. It is hoped that all will see the advantages of this course, and encourage its adoption, and that every dealer will avail himself of the opportunity thus offered by the Station, to secure for himself and his customers the benefit that must accrue therefrom.——The following directions must be *strictly followed* in order to obtain fair samples, and to do justice alike to manufacturers, dealers, and consumers.

DIRECTIONS FOR TAKING SAMPLES OF FERTILIZERS FOR ANALYSIS.

For Guanos, Superphosphates, Bone Dust, Potash Salts, Gypsum, etc.—Have ready for holding the sample a *clean*, tight receptacle, preferably a closely capped glass fruit jar, of about one quart capacity. Provide also a large sheet of clean wrapping paper, or a clean newspaper. Weigh carefully three barrels, bags, or packages of the fertilizer, and carefully record the actual weight of each. Open, one after another, each of the three bags, barrels, or packages, that have been weighed, and mix well together the contents down to one-fourth, or better, to one-half its depth, crushing very finely any lumps that may be found. Then dip out five (5) equal cupfuls (a tea-cup or bowl will answer) from different parts of the mixed portion of each package. Pour them (15 in all) one over the other on to the paper; intermix these again thoroughly—but expeditiously, to avoid loss or gain of moisture; fill the fruit jar or other receptacle from this mixture, close tightly, pack glass fruit jars in a box, to prevent breakage, label distinctly, and send by express or otherwise, charges prepaid, to "*Agricultural Experiment Station, Middletown, Conn.*"——Each sample must be accompanied by a statement of the weights of the packages, when the article is in packages, the price per ton, etc., also by an exact copy or a specimen of any printed or written *analysis, advertisement, pamphlet*, or *statement* that accompanies it, or that is used in its sale. Also by a copy of the *brand, name*, or *trade-mark*, the name and address of the *dealer*, from whom the sample is procured, and of the name and post-office address of the person or persons taking the sample. No sample will be analyzed for *public use*, unless the name and address of the sender, and other facts are given with sufficient accuracy and definiteness to enable the Station to verify any published statement in regard to the source of the article, etc.——Blanks are prepared for receiving these facts, and those designing to send samples are requested to apply for them at the Station.

W. O. ATWATER, *Director*.

The Connecticut Experiment Station is ready to do as much outside work as it can without interference with its duty to the people of that state. Their interests must be first served, since it derives its chief support from them. It would be most happy to communicate with our correspondents, and would doubtless make the analyses. Of course it could not offer its work to people outside the state at prices lower than are ordinarily charged by reliable chemists. We should advise Mr. D. to learn of different dealers at what prices they will furnish him their wares with *guaranteed* percentages of nitrogen, phosphoric acid, or potash (see A Talk About Fertilizers in February *American Agriculturist*). Then let him see which one will supply the desired ingredients in the best form and at the lowest price per pound, and select accordingly. The Experiment STATION will test the article, and if it is not equal to the guarantee, he can refuse to pay the full price. If the dealers in his region are not ready to trade on this basis, there are plenty of others who will. Several such have already "placed their stock under the supervision of the Station," and will furnish him superphosphates with soluble phosphoric acid at 12½ cents per pound, while in many of the ordinary fertilizers it will cost 15 to 20 cents per pound.

The N. J. Horticultural Society.

The first annual meeting was held at New Brunswick, N. J., on Jan. 21, with an encouraging attendance. An annual address was given by the President, George Thurber, which was followed by the following papers: Wm. Parry, of Cinnaminson, gave his experience with the Raspberry, in the course of which he distinctly pronounced the Amazon to be only an old variety with a new name. C. W. Idell, of Hoboken, gave a paper on the Huckleberry, especially as to the manner of collecting and marketing the fruit; this was listened to with much interest, it being probably the first time this fruit has engaged the attention of a horticultural meeting. Prof. Geo. H. Cook, State Geologist, and Prof. of Chemistry and Agriculture in the Rutgers' Scientific School, gave an address upon Fertilizers, especially with reference to experiments upon the College Farm. On the second day a paper was presented by Peter Henderson, Jersey City Hights, on the Geranium as a Bedding Plant; one by A. S. Fuller, of Ridgewood, on Entomology in its Relation to Horticulture; Mr. E. W. Durand, of Irvington, gave an account of his method of hybridizing the Strawberry; Geo. Such, of South Amboy, read a paper on the Gladiolus and other Summer-flowering Bulbs, and their usefulness for Lawns and Door-yards. Edwin Allen, of New Brunswick, gave an account of the New Fruits of Promise. Wm. H. Goldsmith of Newark related his success in keeping Pears beyond their usual season of ripening, and the final paper, by G. W. Thompson, of Stelton, was upon Hedges and Screens. It will be seen that a sufficient variety of topics was presented to suit all tastes, and some of the papers called out animated and interesting discussions. The Society will not probably undertake an exhibition this year, but will use its influence to secure a proper representation of the fruits of the state at the Centennial Exhibition. The next annual meeting will be held next January, at the same place. Mr. E. Williams, Montclair, is the Recording, and B. B. Hance, Red Bank, the Corresponding Secretary.

The N. Y. Horticultural Association.

The regular meeting was held at room 24, in the Cooper Institute, on Feb. 2. Thirty-five new members were elected, and Thomas Hogg, of Yokohoma, Japan, Marshal P. W. Wilder, of Boston, Mass., and Chas. Downing, of Newburgh, N, Y., were elected honorary members. The display of plants was less than at the previous meeting, owing to the inclement weather.

HORTICULTURAL WONDERS.

A report was presented of the doings of what is known as the "Blue Rose Firm," a concern similar in its pretensions to "La Fayette & Co.," of former years, and which had planted itself on Broadway. The firm had been "interviewed" by two of the members of the Association on the day of the meeting, who had taken full notes of the wonderful articles they offered. The "novelties" did not vary much from those that they or similar concerns have been in the habit of offering each spring, year after year. This shows that New York is large enough to furnish a new crop of gulls every year to be entrapped by these precious scamps. They have now, as before, the inevitable blue, black, and striped roses; the "strawberry tree," producing luscious fruit the size of an orange; asparagus seed that yields a cutting in six weeks; pansy seeds, producing flowers of the brightest scarlet. There are also pear trees, with fruit that might shame in size an ordinary melon; gladiolus bulbs producing flowers blue as indigo, and nearly all other fruits, flowers, and vegetables, as seeds and roots, of a like wonderful character. Most of the professional gardeners, members of the society, were aware of the doings of the "Blue Rose" men, but had never before had an opportunity to take concerted action in exposing the swindle. The feeling evinced among the members showed the chances for these enterprising gentlemen to make another raid on the pockets of the wonder-loving New York burghers, were not likely to soon again occur. The matter having been discussed at the meeting, it has already been noticed by the daily papers, and the "Blue Rose men" will probably be thoroughly *advertised*.

In 1873 one of these concerns was thoroughly shown up in both the *American Agriculturist* and *Hearth and Home*, and in about a week their sales fell off to such an extent that they left for a more favorable clime. The present indications are that the Horticultural Association will be a success, and it can do the public no better service than by exposing all such pretenders as these "Blue Rose" chaps, and all other horticultural swindles.

The Cause of Bitter Milk.—"J. H. L., Spring Valley, N. Y. The greater number of cows are so constituted that, three months at least before calving, the character of the milk changes, and it contains a larger proportion of salts, which are often plainly apparent to the taste. Sometimes these salts are bitter, and spoil the flavor of the milk. It is time then to dry the cow. When a cow gives only two quarts of milk a day, and is in calf, the milk is rarely fit to be used. The fœtal calf then requires all the nutriment contained in this milk, and is deprived of it if it is taken from the cow.

Catalogues Received.

These notices of catalogues are made solely for the benefit of the readers of the *American Agriculturist*. None of doubtful integrity are named. If any dealer receives any benefit from the mention of his catalogue, we are glad of it. One seedsman, who does not seem to be aware that these are *editorial*, and not advertising columns, sent us the money to pay for keeping the notice of his catalogue here for the next two months. He should apply to the advertising department; these notices are given merely as news.

SEEDSMEN.

BRIGGS & BROTHER, Rochester, N. Y., publish their catalogue as the "Quarterly Illustrated Floral Work." Besides the illustrated January number, they send a brilliant and amusing colored engraving representing the "Great Tomato Race," with a distressingly comical beet taking time on a turnip. A good hit.

ROBERT BUIST, JR., Nos. 999 and 994 Market street, Philadelphia, sends his Wholesale Price Current, and his Almanac and Garden Manual; this last contains abundant instructions for sowing, and a special calendar for the southern states.

ALFRED BRIDGEMAN, 876 Broadway, New York. The name of Bridgeman has long been an honored one in the horticulture of New York. The present house issues catalogues of both flower and vegetable seeds, which show that they keep up with the time in novelties, and have all the standard sorts.

ORANGE W. CLARK, Buffalo, N. Y. A catalogue of vegetable and flower seeds, and "as neat as a new pin."

COLE & BROTHER, Pella, Iowa, grow a good share of their own seeds. They show enterprise in offering additional prizes to those who take premiums at fairs with products from their seeds, and a wise liberality in commending to their customers the most desirable horticultural books, and in advising them to take the *American Agriculturist* and other useful journals. Their catalogue, though not so large as some others, is exceedingly neat, compact, and instructive.

CROSMAN BROTHERS, Rochester, N. Y. Vegetable and flower seeds, with various novelties in both, and a brilliant colored plate.

HENRY A. DREER'S Garden Calendar for 1876, contains as usual, a full list, including the specialties peculiar to this house, and to Philadelphia. It also has the most desirable green-house and bedding plants, small fruits, etc.

JAMES FLEMING, No. 67 Nassau st., is now, with one exception, we believe, the oldest seed-store in New York. It has all the standard sorts and various novelties.

JAS. R. V. HAWKINS, Goshen, Orange Co., N. Y. Garden and field home-grown seeds, with varieties of potatoes not before offered.

GEO. S. HASKELL & Co., Rockford, Ill. The western seedsmen do not propose to be outdone by their eastern brethren, as this very handsome catalogue shows. Besides a full seed-list, it contains a well considered garden calendar and much other useful matter.

A. HOWARD & Co., Pontoosuc, Ill. Flowers and vegetables.

DAVID LANDRETH & SON, 21 and 23 South 6th st., Philadelphia, continue their Rural Register and Almanac, from year to year. The list of seeds grown at Bloomsdale, occupies but a small portion of the work, the rest being filled with really useful matter.

JOHN F. OTWELL, St. Mary's, Ont., is a market gardener, and publishes a list of the seeds he raises.

SCOBIE, REED, & SMITH, 137 Liberty st., Pittsburgh, Pa., are the successors in the seed business to the late J. KNOX, and offer a full variety.

B. H. SHUMWAY, Rockford, Ill., sends his Annual Garden Guide and Seed Catalogue, which is fully illustrated.

W. H. SPOONER, 4 Beacon st., Boston, Mass.; Garden Guide and Seed Catalogue. We have mentioned the neatness and novel arrangement of this catalogue; this year is it as full and as well illustrated as formerly.

VANDERBILT BROTHERS, No. 23 Fulton st., New York, have a full and compact catalogue, which contains everything in the way of seeds, in plants, fertilizers, etc., needed for the farm or garden.

JAMES VICK, Rochester, N. Y. Last month, in view of the versatility of James Vick, we said "No one knows what he will do next." He has proved the truth of this assertion by presenting in the "Illustrated Christian Weekly," two pages of the most exquisite engravings that have appeared in any paper, illustrating his seed-farm and the doings thereon. What James Vick will do *next*, no mortal can foretell.

NURSERYMEN.

BURROW, WOOD & Co., Fishkill, N. Y. Fruit and forest trees, especially evergreens; also florists' plants.

ELLWANGER & BARRY, Mount Hope Nurseries, Rochester, N. Y. The extent and character of this establishment are too well known to require notice. A bound volume of their various catalogues is indispensable in the library of a working horticulturist.

H. E. HOOKER & BRO., Rochester, N. Y. General nursery stock, and a specialty in the Brighton Grape, which with them has proved eminently satisfactory.

HOOPES BROTHER & THOMAS, Westchester, Pa. This, one of the oldest and best nurseries in the country, keeps well up with the novelties in all departments, including that of greenhouse plants.

KNODLE BROS., Irving, Montgomery Co., Ill. Fruit and ornamental trees, and a large stock of hedge plants.

E. MOODY & SONS, Lockport, N. Y. This is one of our oldest firms, and has had for the last quarter of a century an excellent character for reliability.

WM. MORTON & SON, Allen's Corner, Me. General nursery stock, with especial attention to young evergreens for hedges and wind breaks.

JOHN S. COLLINS, Pleasant Valley Nursery, Moorestown, N. J. A large stock of small fruits, peach trees, etc.

R. H. HAINES, Malden, Ulster Co., N. Y. Malden is the great raspberry locality, and the list is very full in these and other small fruits.

E. & J. C. WILLIAMS, Montclair, N. J. Small fruits in general, with a novelty in the Duncan Strawberry.

FLORISTS.

DINGEE, CONARD & Co., send their rose catalogue, which is very full and complete.

THOMAS ELVERSON, New Brighton, Beaver Co., Pa., besides a general stock of florists' plants and bulbs, has flower and vegetable seeds, and rustic work.

GREENBROOK & PATERSON NURSERIES, Paterson, N. J. A great variety of rare plants, and special collections for amateurs.

R. C. HANFORD & SON, Columbus, Ohio, send a very full illustrated catalogue of plants. The same firm are also in the nursery business.

LONG BROTHERS, Buffalo, N. Y., in their catalogue for 1876, maintain the same neatness and originality that marked their former issues. The "Home Florist," by Elias Long, we had occasion to commend last year.

MILLER & HAYES, Germantown Ave., Phila., Pa., make a specialty of roses; their list includes the novelties of the last and previous years.

W. B. WOODRUFF, Westfield, Union Co., N. J., has besides florists' stock, a large variety of vegetable plants.

POULTRY.

THOMAS L. HALLWORTH, Cliftondale, Mass., has fowls and eggs in general, and Spangled Leghorns in particular.

IMPLEMENTS AND APPLIANCES.

ADAMS & FRENCH HARVESTER Co., Cedar Falls, Iowa, send out the Farmers' Memoranda, which serves as a useful memorandum books, and presents the merits of the harvester.

AMES PLOW COMPANY, Quincy Hall, Boston, and 53 Beekman st., New York. A most elaborate catalogue, in which nearly every implement used on the farm or in the garden is handsomely illustrated by engravings. This catalogue presents a novel feature, being in several distinct sections, each complete in itself, or the whole may be bound together. Thus one section contains carts, wagons, and all vehicles; another, their great variety of plows; another, all the haying implements, and so on.

MINARD HARDER, proprietor of the Empire Agricultural Works, Cobbleskill, N. Y., sends his catalogue of horse-powers, threshing machines, and other machines.

JACKSON & TYLER, 16 German st., Baltimore, Md., have a full list of tools and supplies which includes many things suited to the farmer's work-shop.

S. D. PAYNE, Rasota, Minn. Fruit-baskets of various kinds made from straw-board.

STANLEY RULE & LEVEL Co., 35 Chambers st., N. Y. Adjustable planes, miter boxes, and other useful tools peculiar to this establishment.

G. WESTINGHOUSE & Co., Schenectady, make Horse-powers, Thrashing-machines, Clover Hullers, etc.

EUROPEAN CATALOGUES.

WILLIAM BULL, London, Eng., so widely known for his enterprise in securing new plants, has a full catalogue of vegetable and flower-seeds.

EDWARD T. DICKINSON, Chatenay par Antony (Siene), France. Fruit-tree stocks, roses, young forest-trees, etc.

L. LEROY, Angers, France, colored plates of new pears.

The Double Poinsettia is now written about and figured in the English horticultural journals as a bran new thing, without reference to the fact that it was first secured to cultivation through the enterprise of our veteran horticulturist, I. Buchanan, Esq., and was first described in the *American Agriculturist* in 1873, accompanied by an original engraving drawn from the plant itself. Our British friends have a remarkable capacity for ignoring things that happen elsewhere.

The Western N. Y. Horticultural Society held its 21st annual meeting at Rochester, on January 5th and 6th, last. It was a very full gathering, and its proceedings, participated in by such men as J. J. Thomas, P. Barry, Geo. Ellwanger, and others of prominence, could not fail to be interesting. Measures were taken for an exhibition of the fruits of western New York at the Centennial, and officers for the current year elected, P. Barry being President, P. C. Reynolds, Rochester, Secretary and Treas., with a full force of competent associates. This is one of our most thoroughly alive societies, and we are glad to record its prosperity.

No Chromo, "The Strawberry Girl."—We have no more copies of this picture, and the special offer made of it to subscribers is therefore withdrawn. A few who have sent for it since the last were delivered, can be supplied, if they so desire, with the other chromos, in accordance with the advertisement "*For Your Home*," see third page of cover.

"Science at the Farmer's Club."—Now that nearly all the papers find it a waste of time and space, to report the doings of that remarkable body known as the N. Y. "Farmers' Club," we are deprived of much fun. There was never elsewhere seen just such "science" as is displayed here, and it has afforded us many a hearty laugh. Now and then we see a meeting of the club reported in some country paper, and we gladly seize upon it, sure to find somewhere "solid chunks" of Farmers' Club wisdom. In a report of a month or two ago, we find that white-wash was under discussion—they use a good deal of both white-wash and soft-soap at these meetings—and we read, "Mr. Ely said that he had found in his experience, that tallow was a good ingredient for white-wash—but Dr. Smith did not agree with him, as he thought that tallow did not mix well with lime." The Smith family is a large one, and this shows that there is at least one member in it that has a peculiar knowledge of matters and things. Tallow not "mix with lime!" Why some of our important manufactures are founded on the fact that it *will unite* with lime, and the compound is as insoluble as a piece of marble. Tallow is usefully added to white-wash for the purpose of forming a hard and permanent lime-soap. What a "Doctor!"

Judging Live Weight of Stock.—"M. S. D.," Anne Arundel Co., Md. There are no really trustworthy rules for estimating the live weight of stock by measurement. The rules in use are a sort of "rule-of-thumb" calculations from the girth, but these depend so much upon the condition and style of the animal, that they would be as apt to mislead as to inform any person who was not an experienced and accurate judge of stock. The basis of all the rules is the cubic contents of the carcass, with the allowance for offal.

Short-horns in the Dairy.—The dairy farm of Mr. Whitman, of Fitchburg, Mass., is stocked with pure Short-horns. One of these cows has given in one month 1,200 pounds of milk, or about 550 quarts, and in one year 9,200 lbs., or about 4,200 quarts. This yield represents about 900 lbs. of cheese in the year. A calf of one of these cows, 13 months old, weighed dressed 547 lbs.

Oats and Rye Chaff.—"Idle Wild," Orange Co., N. Y. Oat-chaff is a valuable fodder for milk cows. It should be scalded and mixed with a little meal, and then half-a-bushel makes a good feed for a cow. Rye chaff is not so good, on account of the beards, which stick in the cow's stomach when it is fed alone. It is an excellent packing material for ice-houses, and might be sold for that purpose, perhaps.

Fertilizers and Other Things sent to Try.—We receive numerous small parcels of fertilizers, with the request to try them on pot plants, and report; also cattle food of various kinds, as well as medicines for horses and other animals, including poultry. We have one general rule about such matters—we do not "try and report upon" any secret compound whatever; we have no time to expend in blind experiments, nor have we either any plants or animals that we do not value too highly, and have too much respect for, to treat them to any food or medicine the composition of which we are ignorant. Suppose we put some stuff on the earth of a pot, and the plant apparently grows with more vigor, what then? Our knowledge is not increased a particle, but if the maker of the secret compound can get us to say this on paper, (we think we see ourselves doing it!), it would be worth a nice sum to him. It is useless to send secret preparations to us, as we have no use for them.

Maple Sap Buckets.—"D. S., Jun.," Preston Co., W. Va. The quality of the maple sugar depends greatly upon the kind of vessels used in gathering the sap and boiling it down. Open wooden buckets are now being rapidly displaced by an improved sap-bucket, which is made by C. C. Post, of Burlington, Vermont. This is of tin, and has a cover to keep out leaves, pieces of bark, and other trash. It is made to hang upon the sap-spout, which is also made by Mr. Post. The spout is of galvanized iron, and fits into a half-inch auger hole bored into the tree. This saves all the damage to the tree by gashing it with axes, which soon kills the most thrifty ones. Besides, several holes may be bored in each tree, and the flow of sap thus much increased. There is not only more sugar made, but it is much better, and commands a higher price. The old-fashioned sap-spouts, troughs, and buckets, should be discarded when maple sugar brings 25 cents a pound, and an acre of sugar orchard may be made the most valuable acre upon the farm.

Materials for Compost.—"W. E. D.," Pasquotank Co., N. C. It is very profitable labor to gather leaf-mold and pond-muck, to compost with stable manure. "Pine straw," pine tree leaves, is not of much value, yet in the absense of other materials, will serve some useful purpose as an absorbent.

Fertilizers for Grass.—"C. B." An old sod of orchard grass is apt to be bare in spots and bunchy, as it is the habit of this grass to grow in tufts. To renovate this sod, some fresh seed should be sown soon after the field is mown, and a harrow run over it to open up the surface. For a fertiliser, where no manure can be procured, 50 bushels of wood ashes, and 100 pounds of nitrate of soda per acre would be useful. To secure a good set of new seeding, Peruvian Guano is usually a very good artificial fertilizer; say 150 lbs. per acre.

Centennial Sweet Corn.

The most profitable Early Sweet Corn for market or family use. It unites earliness, quality, productiveness, and large-sized ears for market. We give testimonials.—"After repeated trials for several years of the different varieties of early and late Sweet Corn for market and home use, I have found none that will compare, in quality, size, and earliness, with that I bought of you last spring. It is ten days earlier than 'Darling's Extra Early,' and grows double the size, is very sweet and prolific. It is the greatest acquisition of the day. E. H. Judd, Market Gardener, S. Hadley Falls, Mass."—"There has been nothing in the Springfield, Holyoke, Chicopee, and Westfield markets, that can compete with it. L. L. Hooker, Westfield, Mass."—"For its large ears, uniformly well filled, and its earliness for market, the best I ever raised. M. L. Gaylord, East Hampton, Mass."

Per Package, 25 cts.; 5 Pks., $1.00; by mail, Post-paid.
Extra large late Sweet Corn at the same rate.
A. L. CLARK & SON, East Hampton, Mass.

This superb **Illustrated Floral Work**, describing over 500 varieties of *Flower and Vegetable Seeds, Bulbs, etc.*, will be sent you (with one packet of *New Dwf. Bouquet Aster, Blotched and Striped Petunia, or Extra Mixed Pansy*), for only **10 cts.**

The above *three* or any *six* 5c pkts, for 25 cts and the TRIBUTE FREE. W. H. REID,
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GARDEN, FLOWER & FIELD SEEDS,

reliable, fresh and pure, at reasonable prices.
(ESTABLISHED 1839.)
B. H. STAIR & CO.,
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$125 IN CASH PREMIUMS.

For particulars see my Illustrated Catalogue for 1876, containing all the **NEW** and **BEST** varieties of Strictly **FINE GARDEN SEEDS**, carefully grown from **SELECTED** Stocks, and the largest and **BEST** collection of **NEW** and **CHOICE SEED POTATOES** ever offered, sent free to all applicants. Do not fail to see it.
J. R. V. HAWKINS, Goshen, New York.

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FOR GARDEN & FIELDS,

RELIABLE AND TRUE. Send to
TOLEDO SEED HOUSE,
AUGUSTUS B. TABER, Toledo, O.

Bates' Folding Vine Protector.

This Protector was introduced in 1839, and parties that had them in that year have protected their plants every year since, and they are good now. Send for Circular.
Also Imperial Pekin Ducks eggs, from pure stock, $5 per doz.
CALEB BATES,
Kingston, Mass.

SEND FOR DESCRIPTIVE CATALOGUE of **Plants, Roses, etc.**, by mail. 24 pages of information for all interested in Flowers, Fruits, etc., *Free*. 7 Roses, or 8 Grape Vines, for $1.
WM. H. MOON,
Morrisville, Pa.

CHENOA NURSERIES.

APPLE and other FRUIT TREES, GRAPE-VINES, HEDGE PLANTS, ORNAMENTAL PLANTS, GREEN-HOUSE and BEDDING PLANTS for sale. Stock SOUND and HEALTHY. PRICES **low.** Great inducements to **Granges, Clubs,** and **Dealers** for CASH. Spring Price-list now ready. **Free** to all applicants.
Address SCOTT & MAXWELL, Chenoa, Ill.

SMALL FRUITS A SPECIALTY.

300 Acres in Fruits. No. 1 Plants of all best sorts at very lowest rates. See Page 111. Send for prices to
JOHN S. COLLINS, Moorestown, N. J.

CHESTER COUNTY MAMMOTH

CORN yields 75 to 125 bushels. 1 lb., post paid, 50c. **BLOODED** Cattle, Sheep, Hogs, Poultry, Dogs, etc. Circular **FREE.** W. ATLEE BURPEE, Philadelphia, Pa.

LANE'S Improved Imperial **Sugar Beet** Seed. 1 oz. 10c., ¼ lb. 25c.; 1 lb. 80c.; 4 lbs. $2. **Snowflake, Eureka,** and other **Potatoes and Seeds** at low prices. Send for *Catalogue*. DAVID R. WOOD, Morrisville, Vt.

Jenkins' Nurseries.—Sugar Maple, Linden, Transp. Evergreens, very low. Magnolia, $15 p. M.; Concord, $10, $15 & $30 p. M. Apple Seed, Pyrus Japonica, &c. Send for Catalogue. Ad. J. Jenkins, Winona, Columbiana Co., O.

BEAUTIFUL Illustrated BOOK FREE OF CHOICE Fresh Seeds.
Warranted best in the world. Lowest prices, send for free book. R. H. SHUMWAY, Rockford, Ill.

RARE BUSINESS CHANCE.

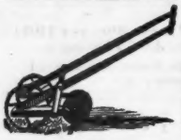
For sale a Seed and Floral Establishment, doing a profitable business, and situated in the best part of the city; has a large trade in **Floral Designs** and **Cut Flowers.** Easily managed. Will sell either with property, or give a long lease on favorable terms. The buildings were erected especially for the business. Good reasons given for selling. Established 8 years. Apply to D. GRINTON,
97 Chippewa St., Buffalo, N. Y.

Bancroft Patent Wheel Hoe.

One man can do more work than ten with common hand hoe, and nothing but a pleasure in comparison to run it. Descriptive price-list sent free. Agents wanted in every town. I also have an immense stock of Deciduous and Evergreen Trees of all sizes and kinds.
Address **THOMAS JACKSON,**
Nurseryman, Portland, Maine.

Holbrook's "VETO" SEED DRILL & "NEW" Hand Cultivator sow and cultivate all kinds vegetables. Do work of 10 men. Best and cheapest. Price $12.50 combined.

Circulars Free. Made by **I. W. LUMMUS & CO., Boston, Mass.**



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Every **Gardener, Onion Grower** and **Nurseryman** needs it—saves much weeding—protects plants from being covered—does the work of *six* men.
Send for descriptive Circular.
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Matthews' Garden Seed Drills

and **Matthews' Hand Cultivators,** are the most reliable, durable, popular and salable ever produced. Sold separate or combined. Send for Circular. Made only by
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GENUINE PERUVIAN GUANO, $66 per ton. Russell Coe's Ammoniated Bone Superphosphate of Lime, $45 per ton. Double Refined Poudrette, $25 per ton. Ground Bone, $30 and $35 per ton. Land Plaster, packed in bbl., $12 per ton.
Dealers supplied with any of the above standard Fertilizers at lowest trade price. Delivered to Rail-Road or Boat free of cartage.—Order direct of
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Wholesale Dealer in Agricultural Implements and Fertilizers, 60 Courtlandt Street, New York.

The Universal Fertilizer

is the cheapest and best manure in use. $50 per ton. Read Dr. Hexamer's opinion in our new circular.
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THE STOCKBRIDGE FERTILIZERS

Are made after Formulas of Prof. Stockbridge of Mass. Agricultural College, from pure chemicals, and give large returns at *small cost*. Pamphlets with the formula, prices, &c., FREE. W. H. BOWKER & CO., Sole Agents, 43 Chatham St., Boston.

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DEALERS IN
PERUVIAN GUANO
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Do you want to double your crops?
Do you want early and large vegetables?
Do you want to be far ahead of your neighbors, and all at less expense than using barn-yard manure?
Then buy the Double Refined Poudrette. Price $25 per ton. Send for circular to
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Something new. Was awarded first premiums at Ohio, Indiana, and St. Louis Fairs. Also Standard **TILE MACHINES.** Best in use. For circular address
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WANTED—The address of every Grange Secretary in the West, that we may send them our SPECIAL TERMS and PRICES of Nursery Stock and Hedge Plants for Spring planting. Address SCOTT & MAXWELL, Chenoa, Ill.

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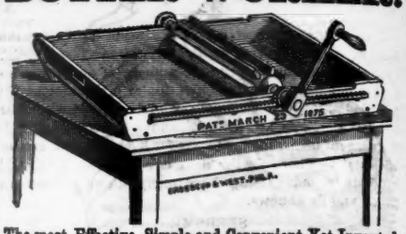

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"It is a machine that should be in every dairy, small and great."—*William Crosier, Northport, L. I.*
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Force Pump, Plant Syringe.—$4.50.

Page's Improved, with Graduating Sprinkler—will throw water 50 feet, and change to coarse spray or fine mist instantly. N. PAGE, JR., Danvers, Mass.

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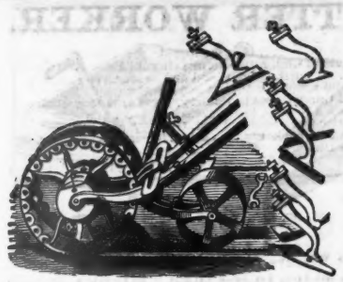

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They "SOW *like a charm*;" *no packing* of seed in the hopper, *no crushing* it, *no difficulty* with *chaffy* or *soaked seeds*, *no watching*, *no pausing* or *waste* at the ends, *no irregularity* in depth, *no skips*, *no springs* or *gearing* to wear out, *no noise*, NO EQUAL. No. 2, holds 2½ qts.—No. 8, holds ½ bush. and sows Fertilizers.

THE COMBINED machine, the AGRICULTURIST PREMIUM, (see Premium List), holds 1 qt., and "*is a perfect seed-sower*." It has one pair of hoes for general work, one for heavy furrows, a plow and subsoiler. THE DOUBLE WHEEL HOE (see cut) works *easier, better, and six to twelve times faster* than the hand hoe. Wheels can be set two, six, or ten inches apart. It has three different pairs of hoes, and a pair of subsoilers; ALL our blades are steel, tempered and polished. Will work 6, 9, or 10 inch rows, TWO AT ONCE, *often saving cost in a day*.

Our NEW polished steel blade HORSE HOE, perfected after ten years of experiment, and trial by our S. L. Allen, a practical farmer. *Saves* most of the hoeing, and *makes the remainder easy*; leaves the ground *level or ridged* as desired, *opens furrows, hills*, and cultivates shallow or deep, and is a thorough weed killer. Especially adapted to the wants of *Market-Gardeners, Broom Corn, Tobacco, Cotton, Rice, and Root* Growers, and all lovers of thorough work: should be owned *by every farmer*. Send for cuts with full description and testimonials, free. *Mention this paper*. S. L. ALLEN & CO., Sole Manfrs., 119 S. 4th St., Phila., Pa. **We must have A LIVE AGENT in every town.**

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The only Ring invented that will effectually prevent Hogs from Rooting. Being a Double Ring, and having no sharp points in the flesh, it does not cause irritation or soreness, as in other Rings. The smooth part of the wire being in the nose, it heals rapidly. One of our rings being equal to two or three of any other ring, makes this ring cheaper than the cheapest. Time and money saved in using the Champion. One operation, and the work is done.

Price of Hog Ringer, 75c. each; Coppered Rings, 50c. per 100; Tinned Hog Rings, 60c. per 100; Hog Holder, 75c. each.

CHAMBERS & QUINLAN, Exclusive Manufacturers, Decatur, Ill.

ASK YOUR DEALER FOR THEM.

THE MITCHELL WAGON.

THE

Best Proportioned,

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Lightest Running

Wagon in the Market.

The original, well known

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All work fully warranted.

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FOUST'S HAY LOADER, Improved for 1876, including Wind-Break Attachment. Warranted to pitch a ton of hay from the winrow in five minutes, and take it as clean as by the hand fork. Adapted to all ordinary meadow land, and to any farm wagon. Manufactured by STRATTON & CULLUM, Agricultural Works, Meadville, Pa. Send for Descriptive Circulars early.

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Producing much more power than other railway powers, with *much less elevation*.

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SHAKER THRESHER.

First-class small Thresher—four to six horse Lever-power. Will thresh and clean twenty to thirty bushels wheat per hour.

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Cane-mills and Evaporators, Steam Engines, Church, School, and Farm Bells. Circulars sent on application.

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EMPIRE PORTABLE FORGES

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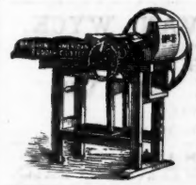

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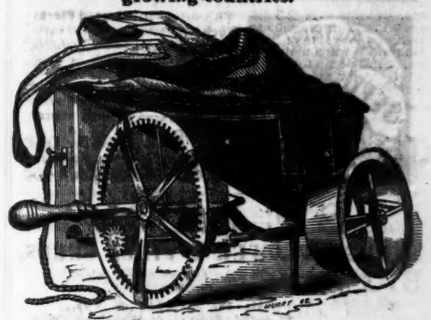

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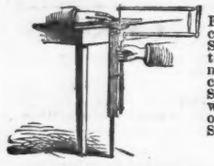

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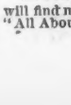

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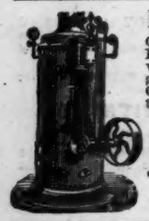

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THIRTY-FIRST ANNUAL REPORT OF THE

New York Life Insurance Company,

OFFICE:

Nos. 346 and 348 Broadway,

JANUARY 1, 1876.

Amount of Net Cash Assets, Jan. 1, 1875, - $27,145,777 51

REVENUE ACCOUNT.

Premiums and annuities.....	$6,069,002 81	
Interest received and accrued.....	1,070,658 34	—7,939,661 15
		$35,085,438 66

DISBURSEMENT ACCOUNT.

Losses by death.....	$1,524,814 84	
Dividends and returned premiums on canceled policies.....	2,481,696 96	
Life annuities, matured endowments, and reinsurances.....	182,400 88	
Commissions, brokerages, and agency expenses.....	361,918 06	
Advertising and physician's fees..	87,591 26	
Taxes, office, and law expenses, salaries, printing, etc.....	280,114 03	—4,918,535 97
		$30,166,902 69

ASSETS.

Cash in Trust Company, in bank, and on hand.....	$1,768,291 26	
Invested in United States, New York City, and other stocks (market value, $7,683,244).....	7,154,191 05	
Real estate.....	1,820,240 33	
Bonds and mortgages (secured by real estate valued at more than double the amount loaned, buildings thereon insured for $15,717,000, and the policies assigned to the Company as additional collateral security).....	17,685,597 50	
Loans on existing policies (the reserve held by the Company on these policies amounts to $4,090,586).....	835,728 82	
Quarterly and semi-annual premiums on existing policies, due subsequent to Jan. 1, 1876.....	463,269 64	
Premiums on existing policies in course of transmission and collection (estimated reserve on these policies $320,000, included in liabilities).....	105,341 54	
Agents' balances.....	27,111 49	
Accrued interest to Jan. 1, 1876, on investments.....	257,130 86	—30,166,902 69
Excess of market value of securities over cost.		479,052 95

Cash Assets, Jan. 1, 1876, $30,645,955 64

APPROPRIATED AS FOLLOWS:

Adjusted losses, due subsequent to Jan. 1, 1876.....	303,165 00	
Reported losses awaiting proof, etc.....	144,598 66	
Reserved for reinsurance on existing policies; participating insurance at four per cent Carlisle net premium; non-participating at five per cent Carlisle net premium	27,390,396 44	
Reserved for contingent liabilities to Tontine Dividend Fund over and above a four per cent reserve on existing policies of that class..	308,138 81	—28,146,298 91

Divisible Surplus, - - 2,499,656 73

From the undivided surplus of $2,499,656 73 the Board of Trustees has declared a Reversionary Dividend, available on settlement of next annual premium to participating policies proportionate to their contributions to surplus. The cash value of such reversion may be used in settlement if the policy-holders so elect.

DURING THE YEAR, 7,029 POLICIES HAVE BEEN ISSUED, INSURING $21,964,190.

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